

# **Service Manual**

## **ViewSonic Q7b-3**

**Model No. VS11147**

**17" Color TFT LCD Display**

(Q7b-3\_SM Rev. 1b Oct. 2006)

---

**ViewSonic 381 Brea Canyon Road, Walnut, California 91789 USA – (800) 888-8583**

## **Copyright**

*Copyright © 2006 by ViewSonic Corporation. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of ViewSonic Corporation.*

## **Disclaimer**

*ViewSonic makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranty of merchantability or fitness for any particular purpose. Further, ViewSonic reserves the right to revise this publication and to make changes from time to time in the contents hereof without obligation of ViewSonic to notify any person of such revision or changes.*

## **Trademarks**

*Opt quest is a registered trademark of ViewSonic Corporation.*

*ViewSonic is a registered trademark of ViewSonic Corporation.*

*All other trademarks used within this document are the property of their respective owners.*

# **Revision History**

<b>Revision</b>	<b>SM Editing Date</b>	<b>ECR Number</b>	<b>Description of Changes</b>	<b>Editor</b>
1a	05/05/2006		Initial Release	Jamie Chang
1b	10/19/2006	VS-E060261	Introduce SVA170SX01TB panel source	Jamie Chang
		VS-E060262	Introduce Innolux panel source	Jamie Chang

## **TABLE OF CONTENTS**

<b>1. Precautions and Safety Notices</b>	<b>1</b>
<b>2. Specification</b>	<b>5</b>
<b>3. Front Panel Function Control Description</b>	<b>13</b>
<b>4. Circuit Description</b>	<b>19</b>
<b>5. Adjustment Procedure</b>	<b>24</b>
<b>6. Troubleshooting Flow Chart</b>	<b>45</b>
<b>7. Recommended Spare Parts List</b>	<b>53</b>
<b>8. Exploded Diagram and Exploded Parts List</b>	<b>60</b>
<b>9. Block Diagram</b>	<b>62</b>
<b>10. Schematic Diagrams</b>	<b>63</b>
<b>11. PCB Layout Diagrams</b>	<b>70</b>

# 1. Precautions and Safety Notices

## 1. Appropriate Operation

- (1) Turn off the product before cleaning.
- (2) Use only a dry soft cloth when cleaning the LCD panel surface.
- (3) Use a soft cloth soaked with mild detergent to clean the display housing.
- (4) Use only a high quality, safety approved AC/DC power cord.
- (5) Disconnect the power plug from the AC outlet if the product will not be used for a long period of time.
- (6) If smoke, abnormal noise, or strange odor is present, immediately switch the LCD display off.
- (7) Do not touch the LCD panel surface with sharp or hard objects.
- (8) Do not place heavy objects on the LCD display, video cable, or power cord.
- (9) Do not use abrasive cleaners, waxes or solvents for your cleaning.
- (10) Do not operate the product under the following conditions:
  - Extremely hot, cold or humid environment.
  - Areas containing excessive dust and dirt.
  - Near any appliance generating a strong magnetic field.
  - In direct sunlight.

## 2. Caution

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

## 3. Safety Check

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit, the voltage is exposed in such areas as the associated transformer circuits.


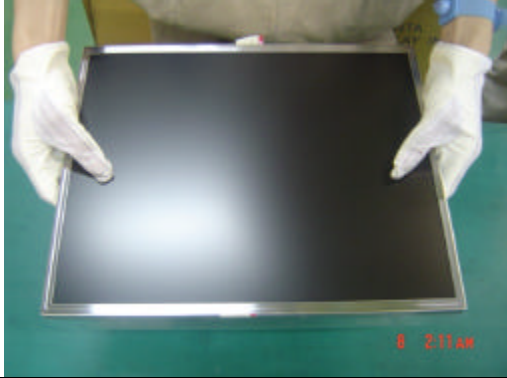



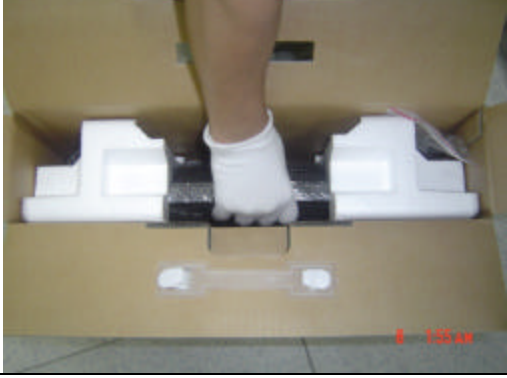
## 4. LCD Module Handling Precautions




### 4.1 Handling Precautions

- (1) Since front polarizer is easily damaged, pay attention not to scratch it.
- (2) Be sure to turn off power supply when connecting or disconnecting input connector.
- (3) Wipe off water drops immediately. Long contact with water may cause discoloration or spots.
- (4) When the panel surface is soiled, wipe it with absorbent cotton or other soft cloth.
- (5) Since the panel is made of glass, it may break or crack if dropped or bumped on hard surface.
- (6) Since CMOS LSI is used in this module, take care of static electricity and ensure human earth when handling.
- (7) Do not open or modify the Module Assembly.
- (8) Do not press the reflector sheet at the back of the module in any direction.
- (9) In the event that a Module must be put back into the packing container slot after it was taken out of the container, do not press the center of the CCFL Reflector edge. Instead, press at the far ends of the CFL Reflector edge softly. Otherwise the TFT Module may be damaged.
- (10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate or tilt the Interface Connector of the TFT Module.

- (11) After installation of the TFT Module into an enclosure (LCD monitor housing, for example), do not twist or bend the TFT Module even momentarily. When designing the enclosure, it should be taken into consideration that no bending/twisting forces may be applied to the TFT Module from outside. Otherwise the TFT Module may be damaged.
- (12) The cold cathode fluorescent lamp in the LCD contains a small amount of mercury. Please follow local ordinances or regulations for disposal.
- (13) The LCD module contains a small amount of materials having no flammability grade. The LCD module should be supplied with power that complies with the requirements of Limited Power Source (IEC60950 or UL1950), or an exemption should be applied for.
- (14) The LCD module is designed so that the CCFL in it is supplied by a Limited Current Circuit (IEC60950 or UL1950). Do not connect the CCFL to a Hazardous Voltage Circuit.

## Handing and Placing methods

Correct methods	Incorrect methods
Only touch the metal frame of the LCD panel or the front cover of the monitor, DO not touch the surface of the POL	Surface of the LCD panel is pressed by fingers and that may cause "mura"
	
	
Take out the monitor with cushions	Taking out the monitor by grasping the LCD panel, that may cause "mura"
	

Place the monitor on a clean and soft foam pad	Placing the monitor on a foreign objects, that could scratch The surface of the "Panel" or cause "mura"
	
	<p>The panel is placed facedown the lap,that may cause "mura"</p> 

## 2. Specification

### 2-1 GENERAL specification

Test Resolution & Frequency	1280x1024 @ 75Hz
Test Image Size	Full Size
Contrast and Brightness Controls	Factory Default: Contrast = 90%, Brightness = 100%

### 2-2 VIDEO INTERFACE

Input Connector (refer the appendix A)	DB-15 (Analog)
Default Input Connector	Defaults to the first detected input
Video Cable Strain Relief	Equal to twice the weight of the monitor for five minutes
Video Cable Connector DB-15 Pin out	Compliant 2B
Video Signals	Video RGB (Analog)
	Separate Sync
Video Impedance	75 Ohms (Analog), 100 Ohms (Digital)
Maximum PC Video Signal	950 mV with no damage to monitor
Maximum Mac Video Signal	1250 mV with no damage to monitor
Sync Signals	TTL
DDC2B	Compliant with Revision 1.0
Sync Compatibility	Separate Sync
Video Compatibility	Shall be compatible with all PC type computers, Macintosh computers, and after market video cards
Resolution Compatibility	640x350, 720x400, 640x480, 800x600, 832x624, 1024x768, 1152x864, 1152x870, 1280x960, 1280x1024
Exclusions	Not compatible with interlaced video

### 2-3 USB INTERFACE

N/A



## 2-4 POWER SUPPLY

Internal Power Supply	FSP FSP035-1PI01ZT
Input Voltage Range	90 to 264 VAC
Input Frequency Range	47.5 to 63 Hertz
Short Circuit Protection	Output can be shorted without damage
Over Current Protection	5.0 A typical at 12.0 VDC
Leakage Current	3.5mA (Max) at 254VAC / 60Hz
Efficiency	80 % typical at 115VAC Full Load
Fuse	Internal and not user replaceable
Power Dissipation	36W(typ) 40W(max)
Max Input AC Current	1.5 Arms @ 90VAC, 0.75 Arms @180VAC
Inrush Current (Cold Start)	50 A (max) @ 115VAC 90 A (max) @ 230VAC
Power Supply Cold Start	Shall start and function properly when under full load, with all combinations of input voltage, input frequency, and operating temperature.
Power Supply Transient Immunity	Shall be able to withstand an ANSI/IEEE C62.41-1980 6000V 200 ampere ring wave transient test with no damage.
Power Supply Line Surge Immunity	Shall be able to withstand 1.5 times nominal line voltage for one cycle with no damage.
Power Supply Missing Cycle Immunity	Shall be able to function properly, without reset or visible screen artifacts, when ½ cycle of AC power is randomly missing at nominal input.
Power Supply Acoustics	The power supply shall not produce audible noise that would be detectable by the user. Audible shall defined to be in compliance with ISO 7779 (DIN EN27779:1991) Noise measurements of machines acoustics. Power Switch noise shall not be considered.
Power Saving Operation(Method)	VESA DPMS Signaling
Power Consumption	On Mode < 36W(Typ) / 40W (max) Active Off < 1 W @ 120 Vac / < 1.5W @ 220Vac
Recovery Time	On Mode = N/A, Active Off < 3 sec

## 2-5 ELECTRICAL REQUIREMENT

### Horizontal / Vertical Frequency

Horizontal Frequency	30 – 80 kHz
Vertical Refresh Rate	55 – 75 Hz.
Maximum Pixel Clock	135 MHz
Sync Polarity	Independent of sync polarity.

### Timing Table

Item	Timing						Analog			Digital - TMDS	Remark
							Separated	Composite	SOG		
1	640 x 350	@	70	Hz,	31.5	KHz					The vertical image size might not full screen (vertical position = center).
2	640 x 480	@	60	Hz,	31.5	KHz					
3	640 x 480	@	67	Hz,	35	KHz					
4	640 x 480	@	72	Hz,	37.9	KHz					
5	640 x 480	@	75	Hz,	37.5	KHz					
6	720 x 400	@	70	Hz,	31.5	KHz					
7	800 x 600	@	56	Hz,	35.1	KHz					
8	800 x 600	@	60	Hz,	37.9	KHz					
9	800 x 600	@	72	Hz,	48.1	KHz					
10	800 x 600	@	75	Hz,	46.9	KHz					
11	832 x 624	@	75	Hz,	49.7	KHz					
12	1024 x 768	@	60	Hz,	48.4	KHz					
13	1024 x 768	@	70	Hz,	56.5	KHz					
14	1024 x 768	@	75	Hz,	60.2	KHz					
15	1152 x 864	@	75	Hz,	67.5	KHz					
16	1152 x 870	@	75	Hz,	68.7	KHz					
17	1280 x 960	@	60	Hz,	59.7	KHz					
18	1280 x 1024	@	60	Hz,	64	KHz					
19	1280 x 1024	@	75	Hz,	80	KHz					

### Primary Presets

1280x1024 @ 75Hz

### User Presets

Number of User Presets (recognized timings) Available: 10 presets total in FIFO configuration

### Changing Modes










Maximum Mode Change Blank Time for image stability : 3 seconds (Max), excluding “Auto Adjust” time

The monitor needs to do “Auto Adjust” the first time a new mode is detected (see section “O-Touch™ Function Actions”)

While running Change Mode, Auto Adjust or Memory Recall, the image shall blank

## 2-6 FRONT PANEL CONTROLS AND INDICATORS

### Front Panel Hardware Controls

Power Switch (Front Head)	Power Control, soft Power Switch.																		
Power LED (Front Head)	Green – ON Orange – Active Off Dark = Soft Power Switch OFF																		
Front Panel Controls (Head; From left to right)	<table><tr><td><u>BUTTON</u></td><td><u>ICON</u></td><td><u>FUNCTION</u></td></tr><tr><td>BUTTON1</td><td></td><td>SELECT(BACKWARD)</td></tr><tr><td>BUTTON2</td><td></td><td>SELECT(FORWARD)</td></tr><tr><td>BUTTON3</td><td></td><td>POWER</td></tr><tr><td>BUTTON4</td><td>-</td><td>ADJUST DOWN</td></tr><tr><td>BUTTON5</td><td>+</td><td>ADJUST UP</td></tr></table>	<u>BUTTON</u>	<u>ICON</u>	<u>FUNCTION</u>	BUTTON1		SELECT(BACKWARD)	BUTTON2		SELECT(FORWARD)	BUTTON3		POWER	BUTTON4	-	ADJUST DOWN	BUTTON5	+	ADJUST UP
<u>BUTTON</u>	<u>ICON</u>	<u>FUNCTION</u>																	
BUTTON1		SELECT(BACKWARD)																	
BUTTON2		SELECT(FORWARD)																	
BUTTON3		POWER																	
BUTTON4	-	ADJUST DOWN																	
BUTTON5	+	ADJUST UP																	
Reaction Time	OSD must fully appear within 0.5s after pushing Button 1																		

### Short Cuts Function from the button(s)

Button 1	Auto Image Adjust.
Button 2	Main Menu
Button 4	Mute on/off
Button 5	Volume OSD
Button 4 + Button 5 + Button 3	Factory Mode (The Burning mode is build in Factory mode)
Remark : All the short cuts function are only available while OSD off	

### Function descriptions

<b>Main Menu Controls</b> The Main Menu OSD include most of control functions. Please refer to APPENDIX B (Main Menu OSD Table) for the detail.
<b>Factory Default OSD Actions</b> Memory Recall action on the analog and digital mode as below 1. Set the factory defaults as shown in Section 2-8 2. Clean all the mode setting buffer 3. Execute Auto Image Adjust
<b>0-Touch™ Function Actions</b> 1. Execute Auto Image Adjust when new mode detected, and save the settings to buffer for further use 2. It should be reset by Memory Recall function (Should not reset by power off, power unplug and others)
<b>OSD Auto Save</b> The OSD shall save new settings when it is turned off by the user or when it times out. There shall not be a separate save

### Factory Defaults

Item	Defaults
Contrast	90
Brightness	100
Color Setting	NATIVE

## 2-7 AUDIO INTERFACE (SPEAKER SPECIFICATION)

### SPEAKER SPECIFICATION

LINE INPUT CONNECTION	3.5 MM STEREO JACK
LINE INPUT SIGNAL	0.7 VRMS
LINE INPUT IMPEDANCE	18 KOHM
MAXIMUM POWER OUTPUT (ELECTRIC)	1 W@ < 15 % DISTORTION
SIGNAL TO NOISE RATIO	50 DB
FREQUENCY RESPONSE	200 HZ – 10 KHZ
DISTORTION	< 5 % THD (@1KHZ)
VIBRATION	THERE SHOULD BE NO AUDIBLE VIBRATION WITH VOLUME AT 100% AND TREBLE / BASS AT DEFAULT.
SCREEN IMAGE	THERE SHOULD BE NO AFFECT ON THE SCREEN IMAGE STABILITY UNDER ANY CONDITIONS.
CONNECTOR PC99 REQUIREMENT AUDIO IN	LIME GREEN PANTONE # 577C
CABLE TYPE / LENGTH	3.5MM STEREO CABLE / 1.8M LENGTH
AUDIO DPMS	SPEAKERS SHOULD BE OFF WHEN THE REST OF THE MONITOR IS IN POWER SAVING.
SYMPATHETIC	UNDER FOLLOWING CONDITIONS, THERE SHOULD BE NO SYMPATHETIC HEARD 1. INPUT $\leq 0.7\text{VRMS}$ 2. VOLUME OSD $\leq 80$ 3. DISTANCE $\approx 30\text{CM} \pm 5\text{CM}$

## 2-8 TFT LCD PANEL

Panel Characteristics:

### 1<sup>st</sup> Source Panel

Model number	CMO M170E5-L09 (17")
Type	Active Matrix TFT, TN technology
Pixel Arrangement	RGB Vertical Stripe (0.264 mm Pixel Pitch)
Glass Treatment	Anti-Glare, Hard Coating (3H)
# of Backlights	4 CCFL
Backlight Life	50,000 Hrs (Typical)/40,000 Hrs (Min)
Luminance (Center)	300 cd/m2 (Typical) /230 cd/m2 (Min)
Brightness Uniformity	80% (Typical) / 75% (Min)
Contrast Ratio	500 :1 (Typical) / 400 : 1 (Min)
Color Depth	16.2 million colors (6+2 bit panel)
Viewing Angle (CR>10)	(H) 150°/ (V)130°
Response Time 10%-90% @ Ta=25°C	On/Off : 8 ms
Mercury	3.0 mg per lamp

\* P50% units of monthly shipment shall be equal or better than the Typical value above.

### 2<sup>nd</sup> Source Panel

Model number	Innolux MT170EN01 (17")
Type	Active Matrix TFT, TN technology
Pixel Arrangement	RGB Vertical Stripe (0.264 mm Pixel Pitch)
Glass Treatment	Anti-Glare, Hard Coating (3H)
# of Backlights	4 CCFL
Backlight Life	50,000 Hrs (Min)
Luminance (Center)	280 cd/m2 (Typical) / 250 cd/m2 (Min)
Brightness Uniformity	80% (Typical) / 75% (Min)
Contrast Ratio	600 :1 (Typical) / 500 : 1 (Min)
Color Depth	16.2 million colors (6+2 bit panel)
Viewing Angle (CR>10)	(H)150° degrees (V) 135°
Viewing Angle (CR>5)	(H)170°(Typical) / (V)155°(Typical)
Response Time 10%-90% @ Ta=25°C	On/Off : 8 ms
Mercury	3.0 mg per lamp

\* P50% units of monthly shipment shall be equal or better than the Typical value above.

### 3<sup>rd</sup> Source Panel

Model number	SVA SVA170SX01TB
Type	Active Matrix TFT, TN technology
Pixel Arrangement	RGB Vertical Stripe (0.264 mm Pixel Pitch)
Glass Treatment	Anti-Glare
# of Backlights	4 CCFL
Backlight Life	50,000 Hrs (Typical) / 42,000 Hrs (Min)
Luminance (Center)	300 cd/m2 (Typical) / 240 cd/m2 (Minimum)
Brightness Uniformity	83% (Typical) / 77% (Minimum)
Contrast Ratio	600 :1 (Typical) / 400 : 1 (Minimum)
Color Depth	16.77million colors (6bit panel)
Viewing Angle (CR>10)	(H)130° / (V) 110°
Response Time 10%-90% @ Ta=25°C	On/Off : 8 ms
Mercury	<3.0 mg per lamp

\* P50% units of monthly shipment shall be equal or better than the Typical value above.

## 2-9 IMAGE PERFORMANCE

### Display Size

Horizontal Display Size, Primary Preset	Full Screen
Vertical Display Size, Primary Preset	Full Screen

### Luminance

Lv (Max) –Condition: Brightness / Contrast = 100% Color Temperature = User (R/G/B=100)	Lv (Max) = The Luminance requirement of section 2-6 “TFT LCD PANEL”
Lv (NATIVE) –Condition: Brightness = Default / Contrast = Default Color Temperature = NATIVE	$Lv (NATIVE) / Lv (Max) \times 100\% > 85\%$
Lv (COOL) –Condition: Brightness = Default / Contrast = Default Color Temperature = COOL	$Lv (COOL) / Lv (Max) \times 100\% > 70\%$
Lv (WARM) –Condition: Brightness = Default / Contrast = Default Color Temperature = WARM	$Lv (WARM) / Lv (Max) \times 100\% > 70\%$

### Contrast Ratio

CR(Max) –Condition: Contrast / Brightness = 100% Color Temperature = User (R/G/B=100)	Same as the Contrast Ratio in section 2-6 “TFT LCD PANEL”
---	---

### Saturation

Contrast = Default Brightness = Default Test pattern = 128-gray	NO VISIBLE SATURATION
---	-----------------------

### Preset Color Temperatures

Color Temperature = WARM (CCT around 5500K)	$x = 0.332 \pm 0.03$ $y = 0.348 \pm 0.03$
Color Temperature = NATIVE (CCT around 6500K)	$x = 0.313 \pm 0.03$ $y = 0.329 \pm 0.03$
Color Temperature = COOL (CCT around 9300K)	$x = 0.283 \pm 0.03$ $y = 0.298 \pm 0.03$

\*No redish, greenish or bluish tint under any color setting (base on PVT sample)

### Video Cards Compatibility

Peaking Performance : Peaking is not adjustable

### Raster Artifacts

Video Artifacts : No visible streaking, sag, or smearing artifacts when driven by the specified video cards in the primary mode and after user adjustment to best condition  
Power Supply, and Grounding Artifacts : No visible artifacts in any specified video mode within the horizontal or vertical frequency range of the monitor  
Temperature Drift : Image shall not drift or lose fine-tune adjustment

## 2-10 MECHANICAL

### Desktop

Dimension	375 mm (W) x 372 mm (H) x 160 mm (D) 14.8" (W) x 14.6" (H) x 6.3" (D)
Monitor Weight	4.2 Kg (9.3 lbs)

### Head Only / Wall Mount

Dimension	375 mm (W) x 323 mm (H) x 56 mm (D) 14.8" (W) x 12.7" (H) x 2.2" (D)
Monitor Weight	3.9 Kg (8.6 lbs)

### Ergonomics

Tilt Up	+15° ±2 °
Tilt Down	-5 ° ±2 °

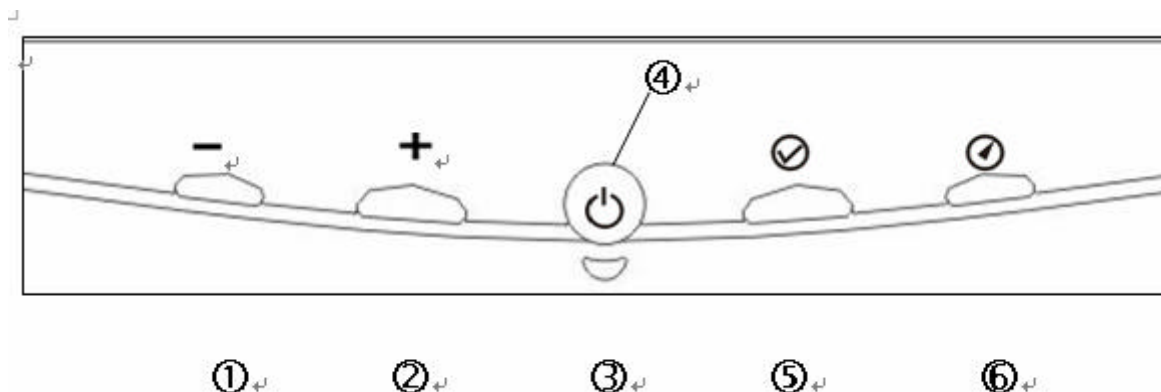
### Cabinet Material

Display Head Plastic Material	ABS-94HB
Neck/Base Plastic Material	ABS-94HB
Internal Plastic Cabinet Components	All internal plastic cabinet components shall be in compliance with the requirements of MPR II
Front Bezel Color	The reference for the Front Bezel is the Black color chip provided by ViewSonic  The color difference between any two cabinet components shall be less than 0.80 "Delta E", in the 1976 CIE L*a*b Colorspace.
Neck, Base, Speaker Cover, Rear Cover and Rear Logo Color	The reference for the Neck, Base, Speaker Cover, Rear Cover and Rear Logo is the Black color chip provided by ViewSonic  The color difference between any two cabinet components shall be less than 0.80 "Delta E", in the 1976 CIE L*a*b Colorspace.
Cabinet Color Drift Due To UV-Light	The color drift due to UV-Light shall be less than 3.0 "Delta E" in the 1976 CIE L*a*b colorspace. Testing shall be performed according to the requirements of ASTM Test Method D4459-93.
Cabinet Texture	Mold-Tech # 11010 used on all external textured surfaces.
Samples	The supplier shall submit textured color chips, plastic material specifications, and Material Safety Data Sheets for approval.

### 3. Front Panel Function Control Description

#### 3.1 Functional Description of Controls

##### a. User Control Panel



##### b. Description of Key Functions

No.	Symbol	Function
①	-	1. Show the mute OSD. 2. Decrease a function's (⚙️ 🔇 📺 📁 📄 📊) value. 3. Move to the next function (📺 🌐 🔇 EXIT) left
②	+	1. Show the volume OSD menu 2. Increase a function's (⚙️ 🔇 📺 📁 📄 📊) value. 3. Move to the next function (📺 🌐 🔇 EXIT) right
③		Power indicator
④	🔌	Turn the power on or off
⑤	⌂	1. Show the main OSD menu 2. Select the next OSD icon down
⑥	⌂	1. Auto-adjust 2. Select the next OSD icon up

#### 3.2 LED Indicator

The Model has one power LED which has two colors, Green and Amber.

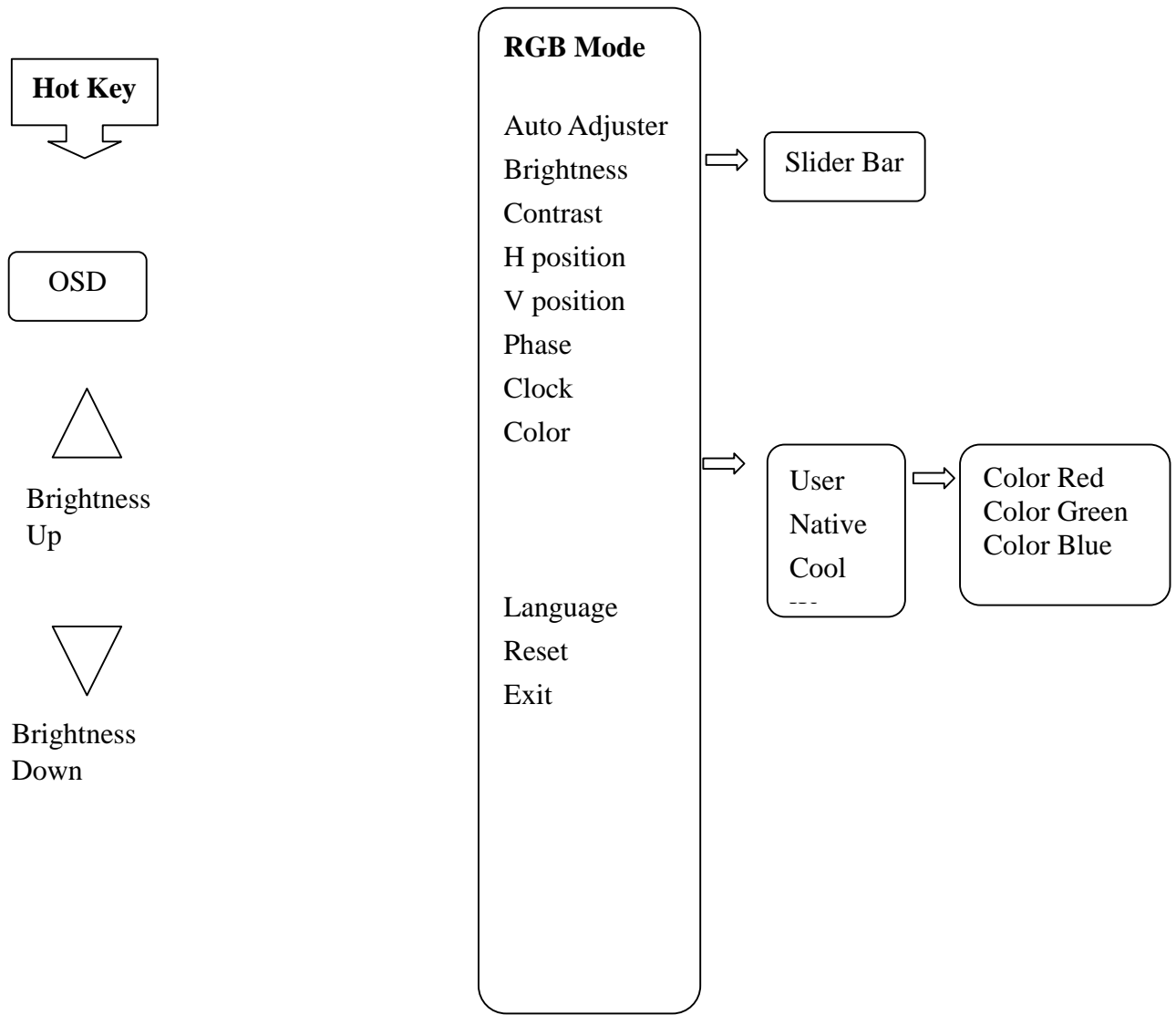
LED should have enough luminance for clear viewable.

Some monitor status area indicated by using this LED, as follows:

	Power LED
Normal On	Green
Suspend	Amber
Active Off	Off
Out of Range	Amber
No Input Signal	Amber (OSD ON)



### 3.3 User Adjustment (At Analog Signal input)



### 3.4 Specification (at all Present Timing)

#### a. BRT / CONT:

Picture background shall become brighter with BRIGHTNESS at its MAX position, and shall become darker at its MIN position.

Contrast of picture shall be changed by adjusting contrast value.

b. Adjusted Range for H/V Center :  $\pm 10$ mm or more /  $\pm 5$ mm or more

c. Adjusted Range for H Phase / Pitch : > 60 steps /  $\pm 50$  dots

d. Color : Standard Shipping Condition - Native

Preset Color Mode - Cool, Native, Warm.

User Adjustment Mode - Users can adjust each R or G or B color individually.

e. Recall : Recall include Brightness, Contrast, Volume, OSD Position, OSD Time, and execute Auto Adjust.

f. Language: Users can choose one of the eight languages : English, French, German, Spanish and Italian, Russian, Tradition Chinese, Simplify Chinese.

g. Power: Pushing Power button shall cause the monitor to be turned ON and LED to be illuminated.

Pushing Power button again shall cause the monitor to be turned OFF and LED to be OFF.

### 3.5 Other User/Service Information

#### a. SIGNAL OVER RANGE:

If the horizontal or vertical or both input signal frequency exceed the acceptable input frequency range, the monitor keeps indicating the “SIGNAL OVER RANGE” as the OSD information after 2 seconds. If both input signal frequencies are in the acceptable frequency range, the monitor puts out the OSD indication and goes back to normal state.

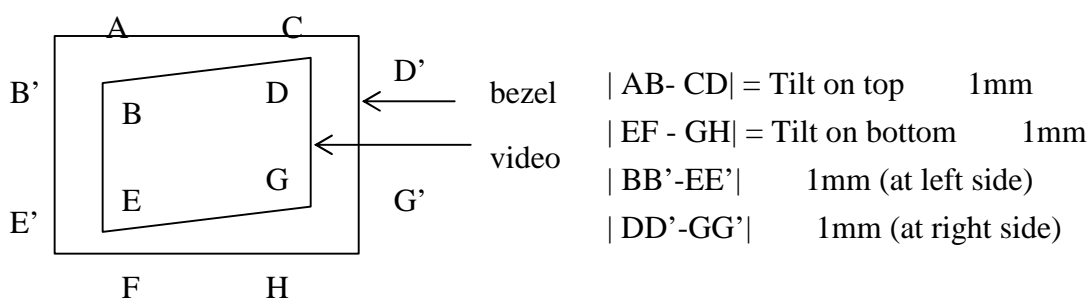
#### b. RGB NO INPUTSIGNAL:

In case of the pin 14 is +5V, the monitor recognizes PC is connected. Otherwise, the pin 14 is low (approx. 0V), horizontal or vertical input signals are not exist, the monitor displays OSD information “RGB NO INPUTSIGNAL” 5 seconds, then goes to power save.

### 3.6 Picture Size & Tilt (Primary mode only; to be checked in shipping condition.)

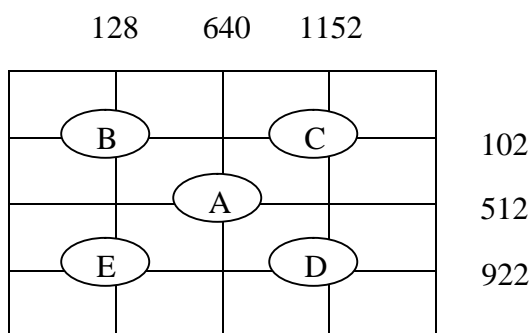
a. Picture Size: < All Models > Follow Panel Spec.

b. Tilt:



### 3.7 Brightness Uniformity and Contrast Ratio

#### a. Brightness Uniformity:



$$\frac{B_{\max} - B_{\min}}{B_{\max}}$$

20%

$B_{\max} = \text{MAX} (B_A, B_B, B_C, B_D, B_E)$

$B_{\min} = \text{MIN} (B_A, B_B, B_C, B_D, B_E)$

$B_{\text{ave}} = \text{AVE} (B_A, B_B, B_C, B_D, B_E)$

#### b. Contrast Ratio:

The contrast ratio is measured at point A and calculated by using the following formula

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance with all pixels in white}}{\text{Luminance with all pixels in black}} \quad 400 \text{ ( According to CMO M170E5-L09 )}$$

### 3.8 Shipping Luminance

- a. Condition      Input signal                      : Full white pattern
- Controls                                      : Color temperature of Office
- Cont./Br.                                      : Default value
- Measurement point : One point at the center of the picture.
- Warm-up time                                      : 30 minutes.
- Color analyzer                                      : CA-210

#### c. Shipping luminance (center)

Color Temperature	Shipping Luminance
	17"
Native	230 cd / m <sup>2</sup>

### 3.9 Maximum / Minimum Luminance

- a. Condition      Input signal                      : Full white pattern (Primary mode)
- Measurement point : Center of LCD screen
- Color Analyzer                                      : CA-210
- Maximum    : BRT    Max.
- CONT    Max.

#### b. Specification: Native only

(1) 230 cd/m<sup>2</sup>

### 3.10 Black Level

- a. Gray Scale Condition      Input signal: 32 Gray scale (Primary mode)  
    Controls      : CONT./BRT. primary setting, other shipping setting  
    condition.
- b. Specification : Native      (1) The first bar from black of gray scale pattern shall be cut off.  
    (2) The last bar from the bright of gray scale pattern shall be  
    discrimination.

### 3.11 Picture Quality

- |              |                    |
|--------------|--------------------|
| a. Condition | BRT : MIN. ~ MAX.  |
|              | CONT : MIN. ~ MAX. |

\*Inspection of picture quality shall be made at the distance of 50 cm in front of LCD surface.

- ### b. Full White Signal

Condition : Input signal – Full white signal

Specification: The following electrical defects shall not be so conspicuous.

- (ITU-R 4.5 or better in primary mode, and ITU-R 4.0 or better in other modes)
- (2) ringing, seam, etc.
  - (3) flicker, noise, beat, etc.
  - (4) shading, etc.
  - (5) saturation of video power supply, etc.

- ### c. Inverted Crosshatch Signal

Condition : Input signal – Inverted crosshatch signal

Specification: Following electrical defects shall not be so conspicuous.

- (ITU-R 4.5 or better in primary mode, and ITU-R 4.0 or better in other modes)
- (1) video ringing, over shoot, smear, etc.
  - (2) vertical jitter, horizontal jitter, picture vibration, etc.

- #### d. Gray Scale Signal

Condition : Input signal – Gray scale signal

Specification: Following electrical defects shall not be so conspicuous.

- (ITU-R 4.5 or better in primary mode, and ITU-R 4.0 or better in other modes)  
(1) Oscillation, noise, beat, shading, etc.

### 3.12 EDID DATA

- a. Condition : Maintain Mode
- b. Specification : FOR RGB

#### **DDC EDID 128 BYTES DATA STRUCTURE**

No.	Item	EDID Data or Definition
00	Header	00 FF FF FF FF FF FF 00
08	ID Manufacturer Name	10 8C (DDL)
0A	ID Product Code	00 00 (0)
0C	ID Serial Number	00 00 00 00 (0)
10	Week Of Manufacture	Week of manufacture
11	Year Of Manufacture	Year of manufacture
12	EDID Version,Revision	01 03
14	Video Input Definition	7E(Analog signal,0.700,0.000(0.7 Vp-p),Black-to-Black, ,Separate Syncs, Composite Syncs, Sync on Screen )
15	Max. H. Image Size	22 (34cm)
16	Max. V. Image Size	1B(27cm)
17	Display Transfe Charac.(gamma)	78(2.20)
18	Feature Support(DPMS)	EB(Stand-by,Suspend,Active Off supported,R/G/B color display)
19	Color Characteristics	Per TFT measurement(See NOTE1)
23	Established Timings	AF--(720*480@70Hz) ,(640*480@60Hz),(640*480@72Hz), (640*480@75Hz),(800*600@56Hz),(800*600@60Hz) EF--(800*600@72Hz),(800*600@75Hz),(832*624@75Hz) (1024*768@60Hz),(1024*768@70Hz),(1024*768@75Hz) (1280*1024@75Hz) 00—
26	Standard Timing Identification	81 80—1280*1024@60Hz; 71 4F—1152*864@75Hz z; 81 40--1280*960@75Hz; 31 46—640x480 @66Hz 01 01-- 01 01-- 01 01-- 01 01--
36	Detailed Timing 1 Description	BC 34 00 98 51 00 2A 40 10 90 13 00 51 0E 11 00 00 1E (1280*1024@75Hz,Video Size:337mm*270mm,No Stereo)
48	Detailed Timing 2 Description	00 00 00 FF 00 20 44 44 4C 30 30 30 30 20 20 20 20 Monitor S/N: DDL00000
5A	Detailed Timing 3 Description	00 00 00 FD 00 37 4B 1E 50 0E 00 0A 20 20 20 20 20 20 (Vf:55~75Hz,Hf:30~80KHz,Pixel Clock:140MHz)
6C	Detailed Timing 4 Description	00 00 00 FC 00 4C 4D 31 37 30 34 0A 20 20 20 20 20 20 (LM1704)
7E	Extension Flag	00
7F	Checksum	Per DDC Specification

#### **NOTE 1 Panel Specification (M170E5-L0A)**

Color characteristics	R: x=0.6445 y=0.3477 G: x=0.2803 y=0.6055 B: x=0.1416 y=0.0713 W: x=0.3135 y=0.3291	Store in EDID data= 0C 55 A5 59 47 9B 24 12 50 54
-----------------------	--	--

## 4. Circuit Description

### A. A/D converters

The ADC is a 7-bit 4-channel analog-to digital converter ,the structure of these ADCS is 7-bit successive approximation ,analog voltage is supplied from external sources to the A/D input pins and the result of the conversion is stored In the 7-bit data latch registers(ADC0\_REG~ADC3\_REG).The A/D cannels are activated by cleaning the correspondent control bits in the ADC\_CON control register, when users write"1" into one of the enable control bits(EN\_ADC0~EN-ADC3),its correspondent I/O pin will be switched to the A/D Converter input pin

The conversion will be started by setting STRT\_ADC Bit, user can monitor this bit to get the valid A/D channel, its latched data is meaningful, the analog voltage to be measured should be stable during the conversion operation and the variation will not exceed 1 LSB for the best accuracy in measurement

### B. Scalling controller

#### 1. VGA front end

- Built-in triple high speed ADC,PLL for analog RGB input
- Supports both non-interlaced and interlaced RGB graphic input signals
- Input signal ranges from 0.55-0.9v
- Provides RGB analog gain and offset control
- Support 64 steps (one cycle of pixel)of phase adjust
- ADC sampling rates are up to 110MHZ for x type, 160MHZ for E type Supports analog SOG input

#### 2. YUV Front End

- Support ITU-R BT.656 8-bit input
- Built-in YUV to RGB color space converter

#### 3. Display

- Supports data swap to fit any panel data alignment for PCB Layout
- Built in LVDS transmitter
- Supports spectrum of output clock

#### 4. Hot interface

- Support serial 2-wire IIC bus
- Provides 2 channel PMW

#### 5. Power

- Power supply
- Less than 1.3W

## 6. Video processor

- Flexible de-interlacing unit for VGA and digital YUV video input data
- Auto-calibration function for quick video centering, clock adjust and phase adjust
- Independent horizontal and vertical zoom in/out algorithm
- Enhanced interpolation algorithm for optimal image quality
- Provides RGB digital gain and offset control
- Dithering function supports 24-bits quality for 18-bit panel
- SRGB matrix mapping support
- 10-bit programmable gamma table for panel compensation
- Supports Hue and saturation adjustment
- Built-in POST pattern

### Timing controller

- Support RSDS output
- Provides 4 differential data pairs to support 6 or 8-bit RGB data bus
- 10 General Purpose output allow suitability to different production environments
- Provide single pixel (18-24-bit) or dual pixel (36-48-bit)
- Programmable RSDS swing level
- Supports line offset function for two bank system panel
- 12 GPO internal controls 10 GPO external pin outputs
- Supports data swap to fit any panel data alignment for PCD layout

### Sync Processor

- Supports separate, composite and TTL-level sync-on-Green (SOG) sync input
- Polarity detection for HSYNCl and VSYNCl
- Fast mode change detection function

## Pin description

Pin No.	Name	Type	Description
1	NC	I	Connect to ground in normal operation
2	NC	I	Connect to ground in normal operation
3	PLL_VAA	P	ADC PLL analog power
4	VREF	P	External reference voltage of 2.5V
5	TESTP	O	VGA output test pin
6	BGND A2	P	B channel analog ground
7	BVAA2	P	B channel analog power
8	ADC_BVAA	P	ADC analog power for B channel
9	ADC_BGND A	P	ADC analog ground for B channel
10	BIN+	I	B channel positive analog video input
11	BIN-	I	B channel negative analog video input
12	GGND A2	P	G channel analog ground
13	GVAA2	P	G channel analog power
14	ADC_GVAA	P	ADC analog power for G channel
15	ADC_GGND A	P	ADC analog ground for G channel
16	SOGI	I	VGA port Sync On Green input with smith trigger
17	GIN+	I	G channel positive analog video input
18	GIN-	I	G channel negative analog video input
19	RGND A2	P	R channel analog ground
20	RVAA2	P	R channel analog power
21	ADC_RVAA	P	ADC analog power for R channel
22	ADC_RGND A	P	ADC analog ground for R channel
23	RIN+	I	R channel positive analog video input
24	RIN-	I	R channel negative analog video input
25	ADC_VAA	P	ADC power
26	ADC_GNDA	P	ADC ground
27	CGND	P	Core digital ground
28-35	Y0 ~ Y7	I	Video data input of bit 0~7 Y7/DE, Y6/VS, Y5/HS ( function selected by P0-CR:E5 )
36	YUV_CLK/D_CLK	I	Video port clock input Digital clock input
37	DVDD	P	Display digital power supply
38	CVDD	P	Core digital power supply
39-46	BB0 ~ BB7 /(BRSB0 ~ BRSB3) /(DBIN0 ~ DBIN7)	O /O /I	TTL mode: Port B, B channel output RSDS mode: Port B, B channel output Digital mode: Digital B channel data input
47	DGND	P	Display digital Ground
48-55	GB0 ~ GB7 /(BRSG0 ~ BRSG3) /(DGIN0 ~ DGIN7)	O /O /I	TTL mode: Port B, G channel output RSDS mode: Port B, G channel output Digital mode: Digital G channel data input
56	DVDD	P	Display digital power supply



57-64	RB0 ~ RB7 /(BRSR0 ~ BRSR3) /(DRIN0 ~ DRIN7)	O /O /I	TTL mode: Port B, R channel output RSDS mode: Port B, R channel output Digital mode: Digital R channel data input
65	POLB/BRSCCLKP	O	TTL mode: Port B data invert indicate output RSDS mode: Port B clock positive output
66	CLKB/BRSCCLKN	O	TTL mode: Port B clock output RSDS mode: Port B clock negative output
67	DISP_VS/SPB	O	SC mode: Display V-sync signal output TC mode: Display Start Pulse B
68	DISP_HS/GPO1	O	SC mode: Display H-sync signal output TC mode: GPO1
69	DISP_DE/SPA	O	SC mode: Display Data-Enable signal output TC mode: Display Start Pulse A
70	DPLL_GND	P	LVDS PLL ground
71	DPLL_VDD	P	LVDS power supply
72	DGND	P	Display Digital Ground
73	T7P/CLKA/ARSCCLK_N	O	TTL mode: Port A clock output RSDS mode: Port A clock negative output LVDS mode: LVDS pair 7 positive output
74	T7M/POLA/ARSCCLK_P	O	TTL mode: Port A data invert indicate output RSDS mode: Port A clock positive output LVDS mode: LVDS pair 7 negative output
75-82	RA7 ~ RA0 /(ARSR3 ~ ARSR0) /(TCLK2/T6 ~ T4)	O	TTL mode: Port A R channel output RSDS mode: Port A R channel output LVDS mode: LVDS pair 4-6 output Clock pair 2 output
83	LVDS_VCC	P	LVDS Interface Power supply
84	LVDS_GND	P	LVDS Interface Ground
85	DVDD	P	Display digital power supply
86-93	GA7 ~ GA0 /(ARSG3 ~ ARDG0) /(T3/TCLK1/T2 ~ T1)	O	TTL mode: Port A G channel output RSDS mode: Port A G channel output LVDS mode: LVDS pair 1-3 output Clock pair 1 output
94	DGND	P	Display digital ground
95-96	BA7 ~ BA6 /(ARSB3) /(T0)	O	TTL mode: Port A B channel output RSDS mode: Port A B channel output LVDS mode: LVDS pair 0 output
97-102	BA5 ~ BA0 /(ARSB2 ~ ARSB0)	O	TTL mode: Port A B channel output RSDS mode: Port A B channel output
103	DVDD	P	Display digital power supply
104	CVDD	P	Core digital power supply
105	DGND	P	Display digital ground
106	RSTn	I	System reset
107	SDA	I/O	Host interface serial data in/out incorporate smith trigger
108	SCL	I	Host interface serial clock incorporate smith trigger buffer &

			spike filter.
109	IRQn	O	Interrupt request output
110	MD1/GPO9	I/O	Host slave address select of Bit2 General purpose output port 9
111	MD0/GPO8	I/O	Host slave address select of Bit1 General purpose output port 8
112	GPO7	O	General purpose output port 7
113	VSO/GPO6	O	Capture V sync output General purpose output port 6 ( function select by P0-CR:D5.3 )
114	HSO/GPO5	O	Capture H sync output General purpose output port 5 ( function select by P0-CR:D5.2 )
115	PWM1/GPO4	O	Pulse Width Modulation output port 1 General purpose output port 4 ( function select by P0-CR:D5.1 )
116	PWM0/GPO3	O	Pulse Width Modulation output port 0 General purpose output port 3 ( function select by P0-CR:D5.0 )
117	D_DE/GPO2	I/O	Digital port data enable signal Input General purpose output port 2 ( function select by P0-CR:08.4 )
118	DVDD	P	Display digital power supply
119	VSYNCl	I	VGA port vertical sync input
120	CVDD	P	HPLL core digital power supply
121	X'TALI	I	Crystal Input
122	X'TALO	O	Crystal output
123	CGND	P	HPLL core logic ground
124	12M/GPO0	I/O	12M clock output or GPO0 General purpose output port 0 ( function select by P0-CR:D5.5 )
125	PLL_GND	P	ADC PLL digital ground
	PLL_GND	P	ADC PLL digital ground
126	HSYNCl	I	VGA port horizontal sync input
127	PLL_VDD	P	ADC PLL digital power
128	PLL_GNDA	P	ADC PLL analog ground

#### C.NT68521

The NT68521 is a high quality image and highly integrated LCD controller, it combines a triple ADC, scaling engine, OSD, LVDS and timing controller

The ADC supporter up to 160MHZ pixel rate and built-in a low jitter digital for sampling input video that provides more stabile ,clear data for display,

The NT68521 Built-in DSP engine execute image zoom-in, zoom out function, the zoom feature provides linear scaling up/down that makes it easier to fit different panel resolutions

The OSD provides a bit map,multi-color RAM front that is more flexible to create the customer's OSD the output provides multi-interface and for general panel solutions ,the display provides LVDS interface

The NT68521 also has a built-in spread spectrum feature to provide low EMI solutions ,SRGB for video color space convert ,post pattern for manufacturing test ,de-interlace feature receives interlace video input and display on TFT panels

## 5. Adjustment Procedure

### 1. Function test

#### 1.1 products

17" LCD Monitor

#### 1.2 test equipment

(2-1). One PC (Windows system);two RS-232 PORT , COM1: signal resolution、COM2: color meter.

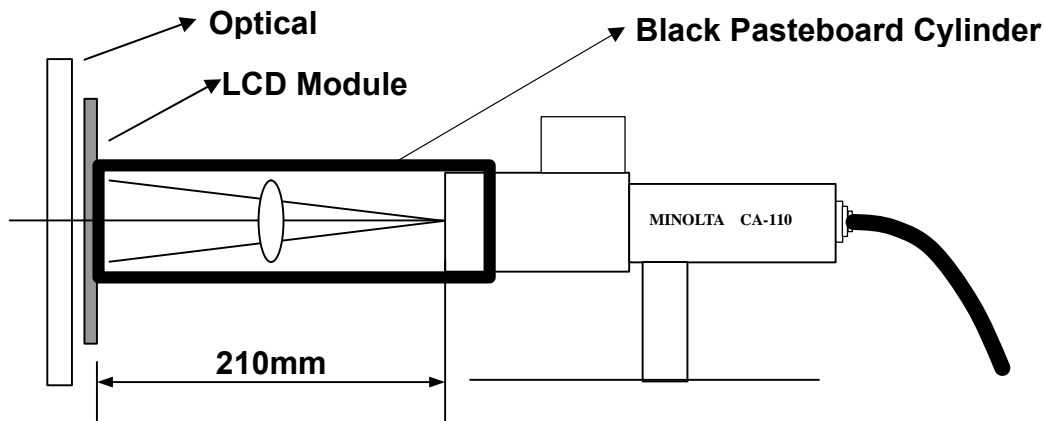
Print PORT: connection with IIC/RS-232 Adapter Board

(2-2).Color Meter: MINOLTA. CA-110 is 21cm apart form the screen (eg: BM-7 distance is 50cm; Field = 2.0)

(2-3). IIC/RS-232 Adapter Board (Set IIC Port)

(2-4). (TOPCON BM-7 or CA110) will be upright with Monitor

(2-5).each equipment's connection circuit diagram, pls see the appendix two and three.



#### (3).Setup

( 3-1 ).with 32 level gray scale Pattern

(3- 2 ).Brightness Set 50; Contrast Set 50.

( 3-3 ). Auto White Balance:

Entered into Maintain mode then choose Menu (F199N) Icon ,and press (+) Key to enter into Maintain Menu; choose Auto Color ,press down (+) Key to implement Auto Color Adjust.

#### (4).adjust specification:

At Brightness=50, Contrast=50 Full White Pattern

6500°K:  $x=0.313\pm0.015$ ;  $y=0.329\pm0.015$

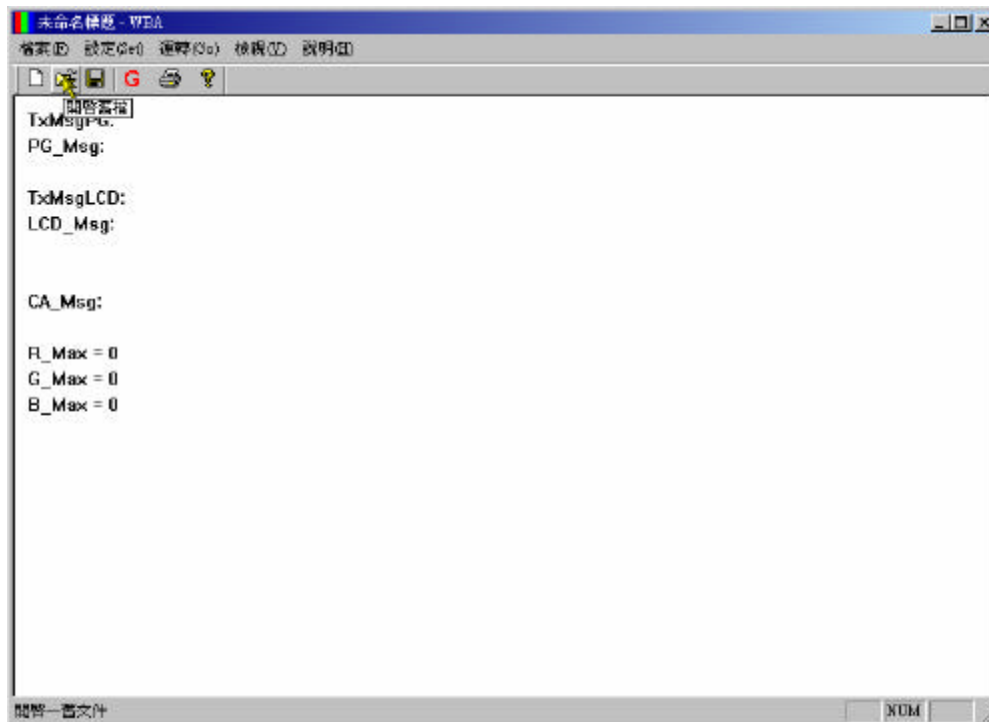
9300°K:  $x=0.283\pm0.015$ ;  $y=0.297\pm0.015$

S RGBK :  $x=0.313\pm0.015$ ;  $y=0.329\pm0.015$

Brightness=50 , Contrast=50 Full White 180 CD/M<sup>2</sup>

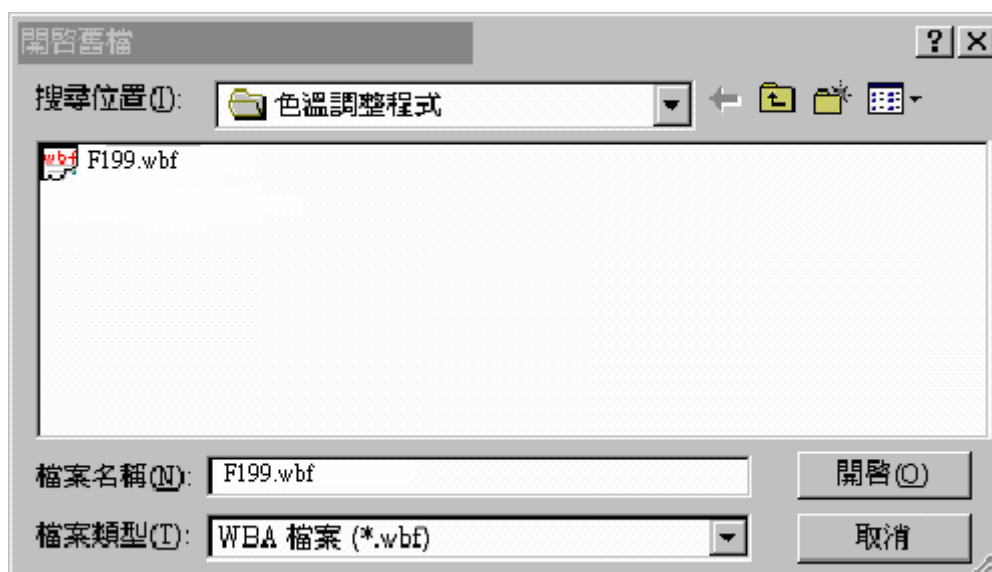
(5). Applicable program exercitation (use the color temperature adjust program to adjust color temperature)

(5- 1).WBA.exe, enter the pattern as follow:



(5- 2 ).at this time .pls press the open document as follow, choose the project document and press the open button, the pattern is as follow

**note: pls choose the related program depending on the model and panel of the product**

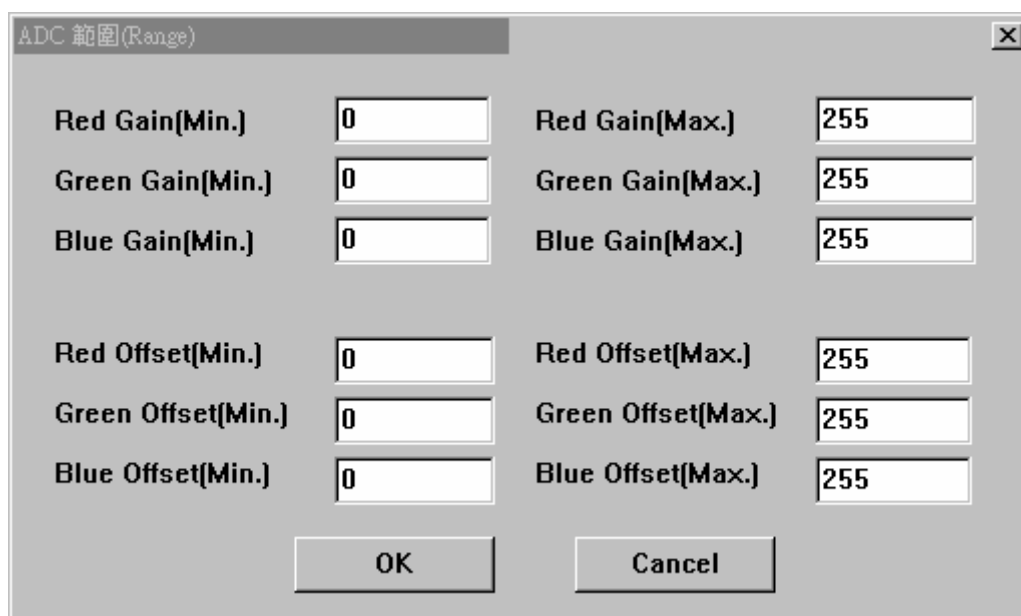


( 5-3 ).pls choose" (Set)"→"Communication", should alter the communication setup,the patter is As follow:



( 5-4 ). Pls select” Set”→”Range”, ADC setup range, pattern is as follow:

**LM1901XXND:** Gain 0 ~ 255 Offset 0 ~ 255



(5-5 ). Pls select"(Set)"→"Color Temperature" setup the color temperature specification, the 7500K of the program is"SRGB"color temperature ,pattern as follow:advise the adjust tolerance will be  $\pm 3$

色温 (Color Temperature)

6500K  
 White\_x: 313 +/- 3 (/1000) ☒ Select  
 White\_y: 329 +/- 3 (/1000)

7500K  
 White\_x: 346 +/- 3 (/1000) ☒ Select  
 White\_y: 359 +/- 3 (/1000)

9300K  
 White\_x: 283 +/- 3 (/1000) ☒ Select  
 White\_y: 297 +/- 3 (/1000)

White Luminance  
 Minimum: 150 [cd/m2]

Black Luminance  
 Maximum: 80 / 100 [cd/m2]

OK  
 Cancel

( 5-6 ). Pls select" Set"→"Color Analyzer" setup color analysis fixture Type,at present we can Use CA-110 and BM-7. Chroma7120,the pattern as follow:

色彩分析儀 (Color Analyzer)

☒ CA-110 (Minolta)  
☐ BM-7 (TopCon)  
☐ 7120 (Chroma)

OK  
 Cancel

( 5-7 ). Pls select” Set”→”Video Generator” to set the signal generator’s Type and Timing/Pattern, refer to the pattern as follow:

影像產生器 (Video Generator)

Timming	318
Full White	41
Full Black	11
16 Gray Level	47
32 Gray Level	48
256 Gray Level	49

Video Generator Type

☒ 2225 [Chroma]

☐ 801FD[QuantumData]

OK

Cancel

( 5-8 ) pls select ”Set”→”Default RGB Gain

Default RGB Gain

9300K

Red Gain	198
Green Gain	190
Blue Gain	192

7500K


Red Gain	223
Green Gain	191
Blue Gain	146

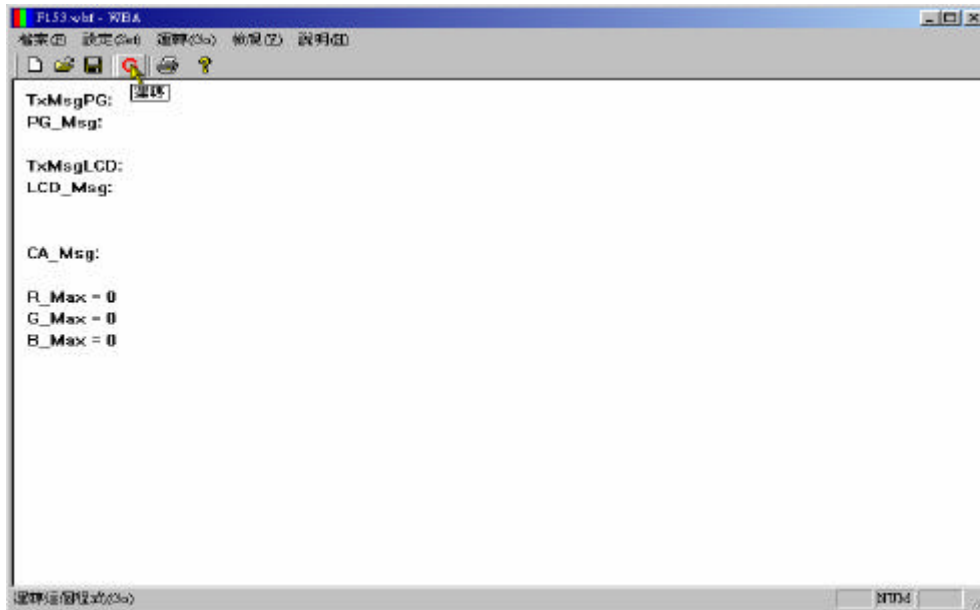
6500K

Red Gain	214
Green Gain	198
Blue Gain	173

OK

Cancel

( 5-9 ). Begin to adjust;pls press the tools menu  Icon, Icon, at this time the program will go on the color temperature adjusting, refer to the pattern as follow.



(6).when adjusting the color temperture,after the auto adjust, you must save the document and then turn

On the machine, test the color and temperature:

6500°K:  $x=0.313\pm0.015$ ;  $y=0.329\pm0.015$

9300°K:  $x=0.283\pm0.015$ ;  $y=0.297\pm0.015$

SRGB :  $x=0.313\pm0.015$ ;  $y=0.329\pm0.015$

(7).POWER SAVING& power test : INPUT 1280x1024 @75Hz FULL WHITE, insert the signal to D-SUB&DVI . CHECK whether the POWER SAVING is normal, POWER SAVING LED whether the dark orange light is normal and the power is within the specification.

(8).gray scale test : Input1280x1024 @75HZ 32 gray scale pattern

Before check the patter、 at first execute auto adjust once based on contrast DAC 0 100 display

The gray scale should be evidently, on the contrary, when it died down and the pattern will be darker and darker。

(9).DDC LOAD: pls select corresponding Model's DDC document as the loading



## 2. Firmware and EDID upgrade/update Methods

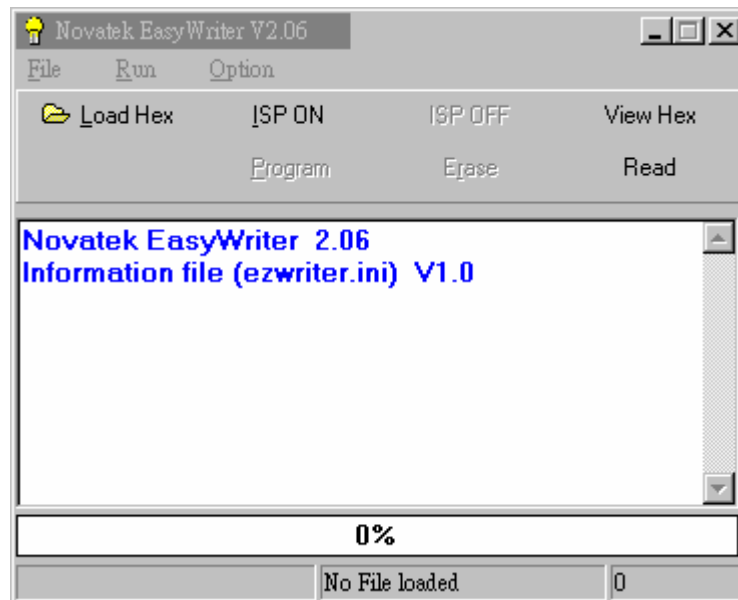
. MCU software written:

### 2-1. Used equipment:

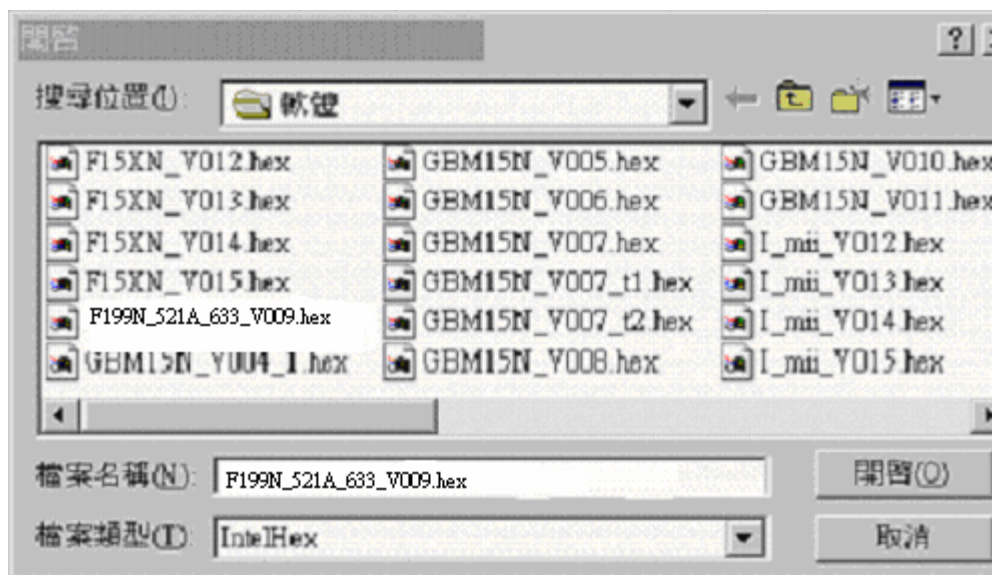
- (1).one PC (Windows system),one Print PORT: connect withIIC/RS-232 Adapter Board
- (2). IIC/RS-232 Adapter Board(Set IIC Port)

### 2-2. applicable program operate:

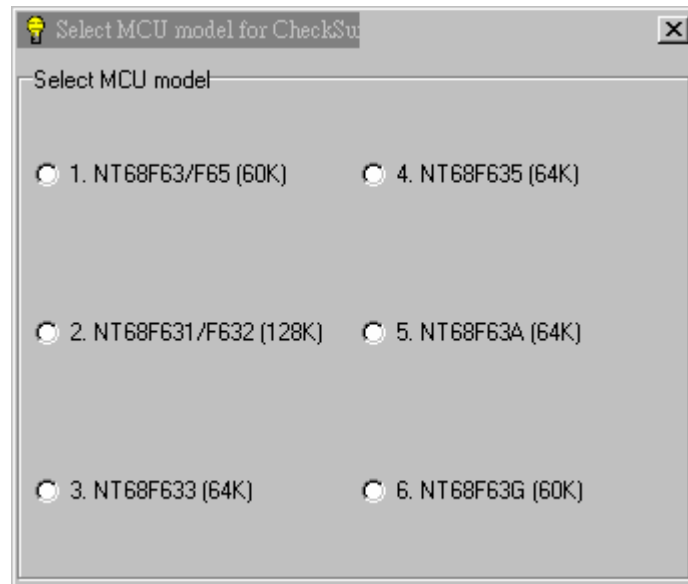
- (1).execute Writer.exe to enter the pattern as follow



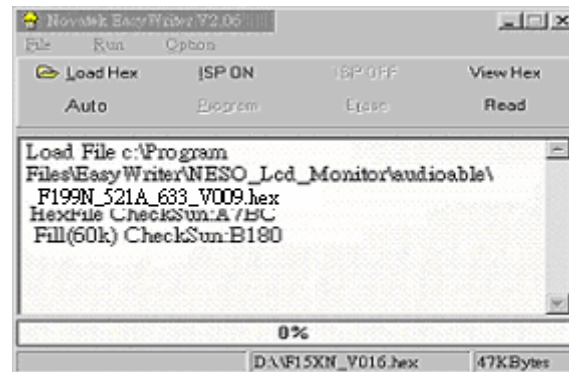
- (2). Then pls press Load Hex document as follow



(3) after opening the Hex document that you choose,pls select the NT68F633 (64K)



(4) begin to load MCU software: after press" AUTO", then at this time will be loading the MCU software,pls see the pattern as follow:



## 2. I/P 1280x1024 @75Hz CROSS TALK (PATTERN63) FH=79KHz,FV=75Hz

2-1.input the signal to D-SUB to execute AUTO ADJUSTING function , then CHECK the pattern whether have interaction noise.(if still have noise ,we can slightly adjust the clock or phase menu)

2-2. I/P1280x1024 @75Hz 32 Gray pattern (PATTERN48) CHECK the pattern cant lack of color or Have too much color .

### 2-3 TIMING CHECK

640x480@60/66/72/75Hz

800x600@56/60/72/75Hz

1024x768@60/70/75Hz

1280x1024@60/75Hz

832x624@75Hz

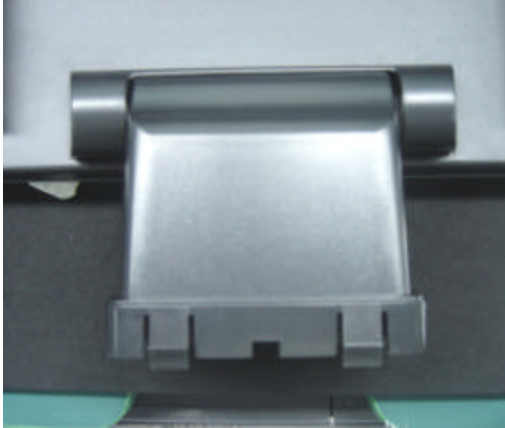
1152x864@75Hz

1280x960@60Hz

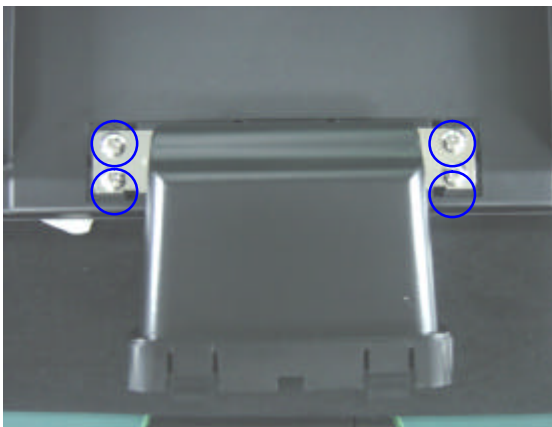
720x400@70Hz

### 3 Disassembly Procedure

1.Remove the hinge cover



2.Unscrew 8 pcs screws



3.Unscrew 2 pcs screws



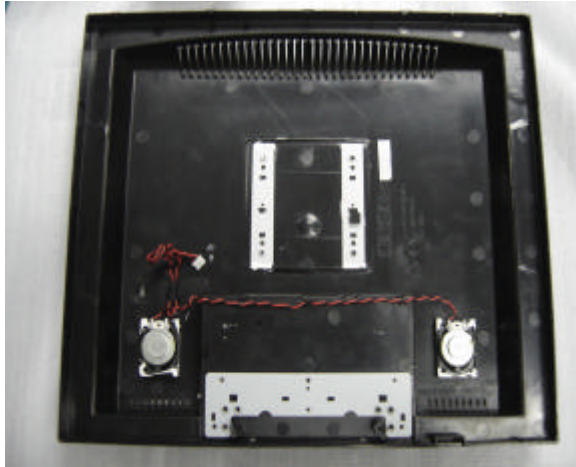
4. Insert plastic flake to hole ,and pull the flake along the gap between the bezel and housing, to separate the housing from bezel.



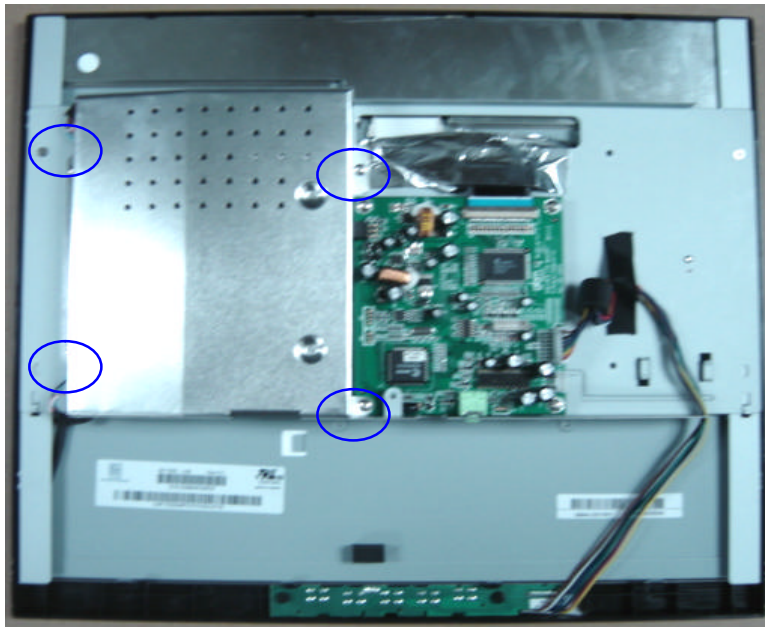
5. Pull out the speaker wire from the main board



6 Take out **housing** part;



7 Remove 4pcs screw,take out ;

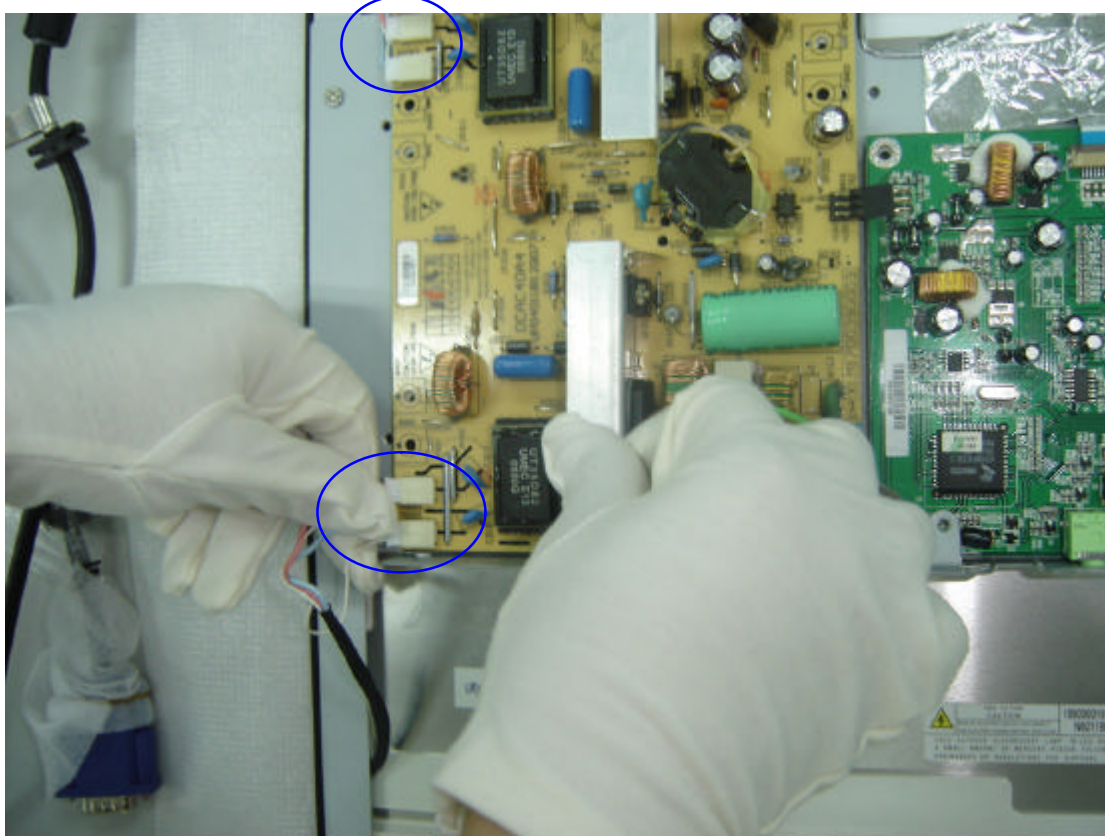




8 . Remove the **earth screw**, push up the **signal cable** from the **frame**, pull up signal cable connector from the **main board** ;



9 Pull out the 4pcs **lamp wire** from **power board**;



10 Unscrew 4pcs screw;

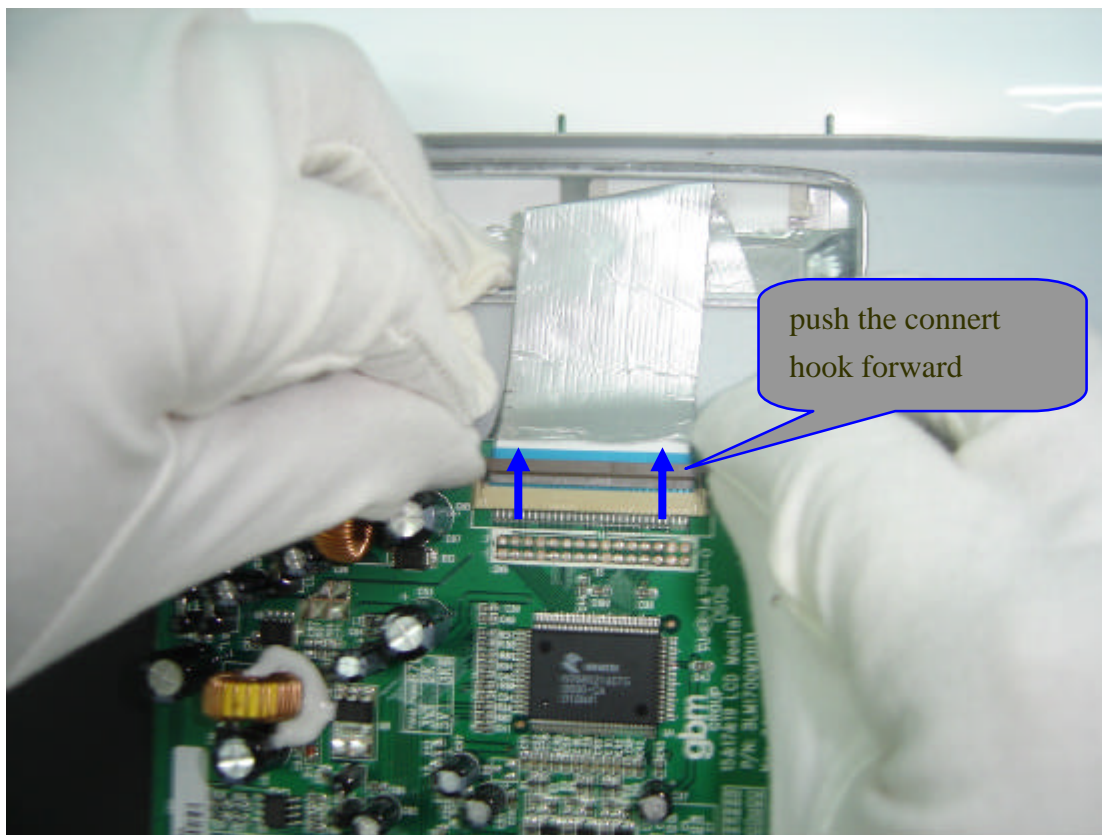


11 Take the power board up from the frame;





12. Tear off the **aluminum foil** where cover the **FFC cable**, push the connert hook forward ,pull out FFC cable from the main board;

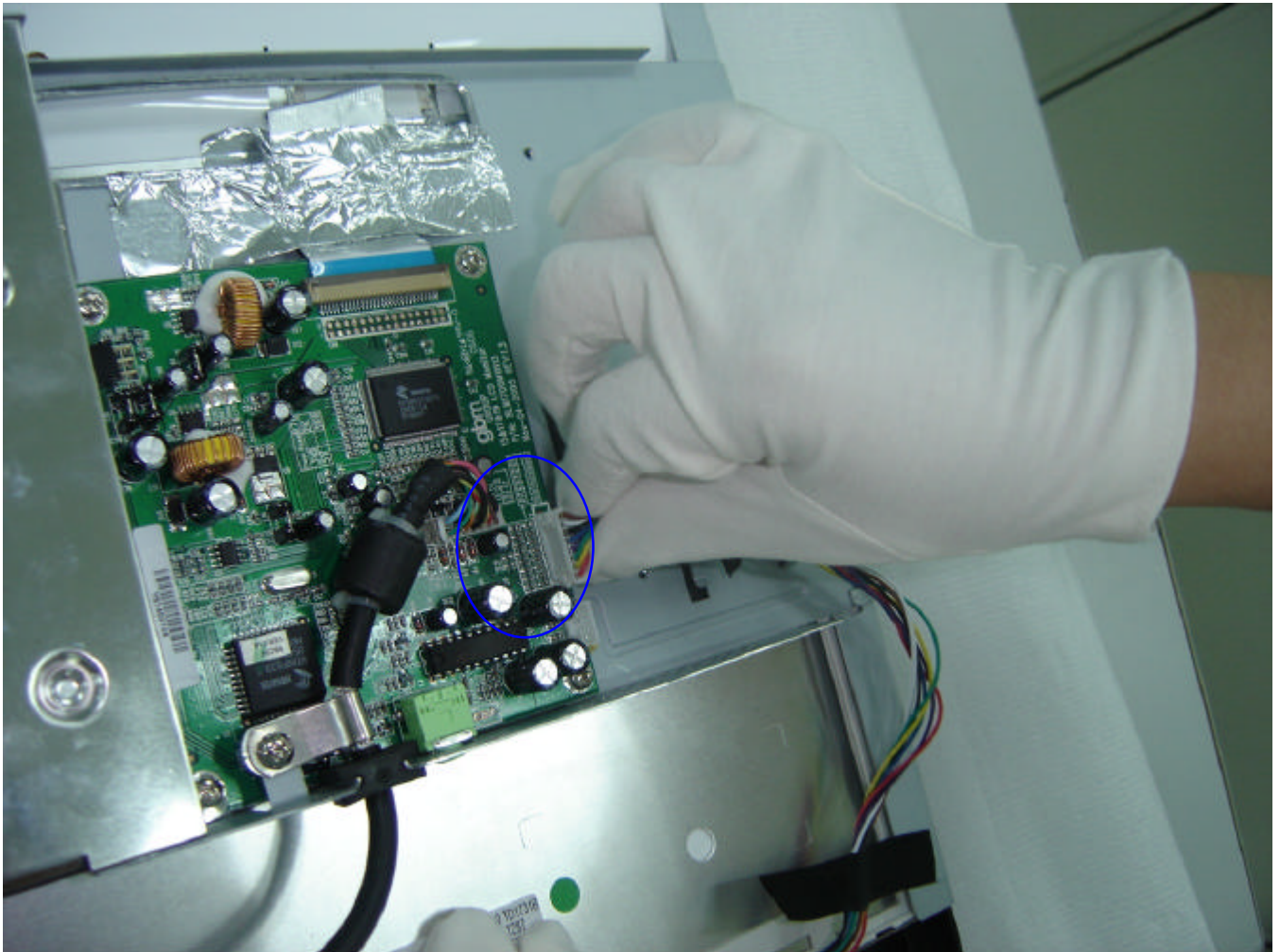


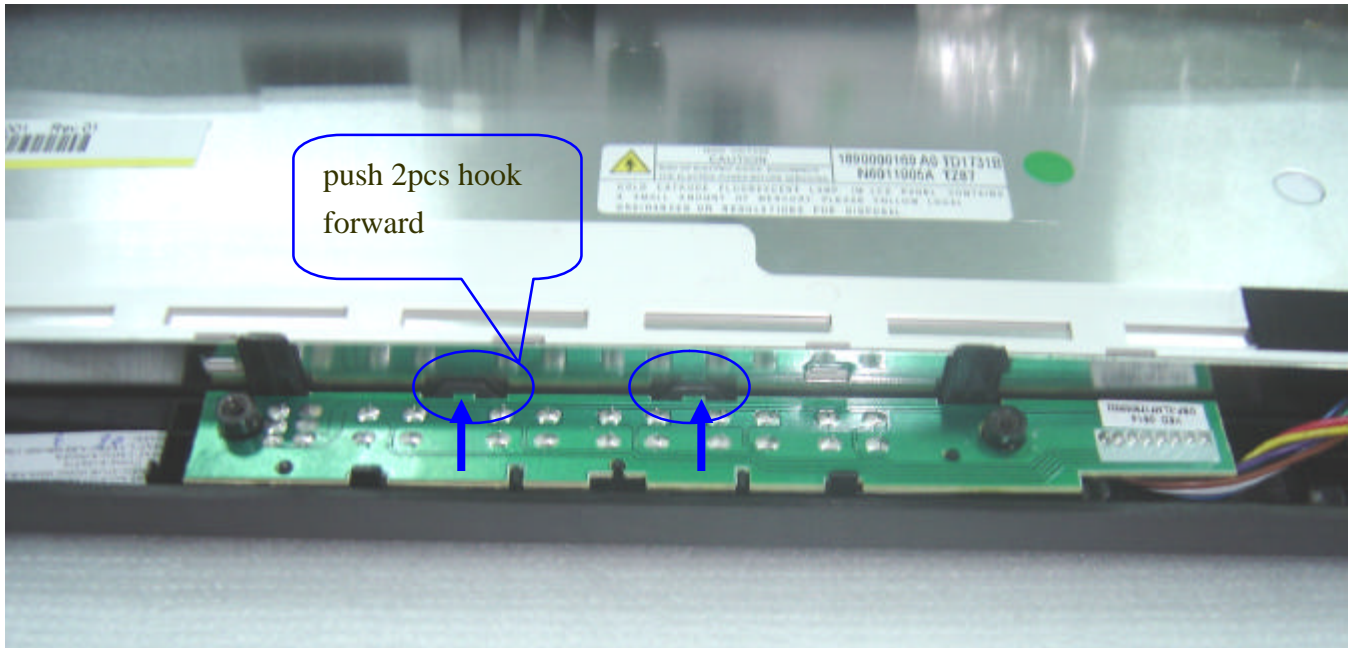


13. Take the power board up from the frame;



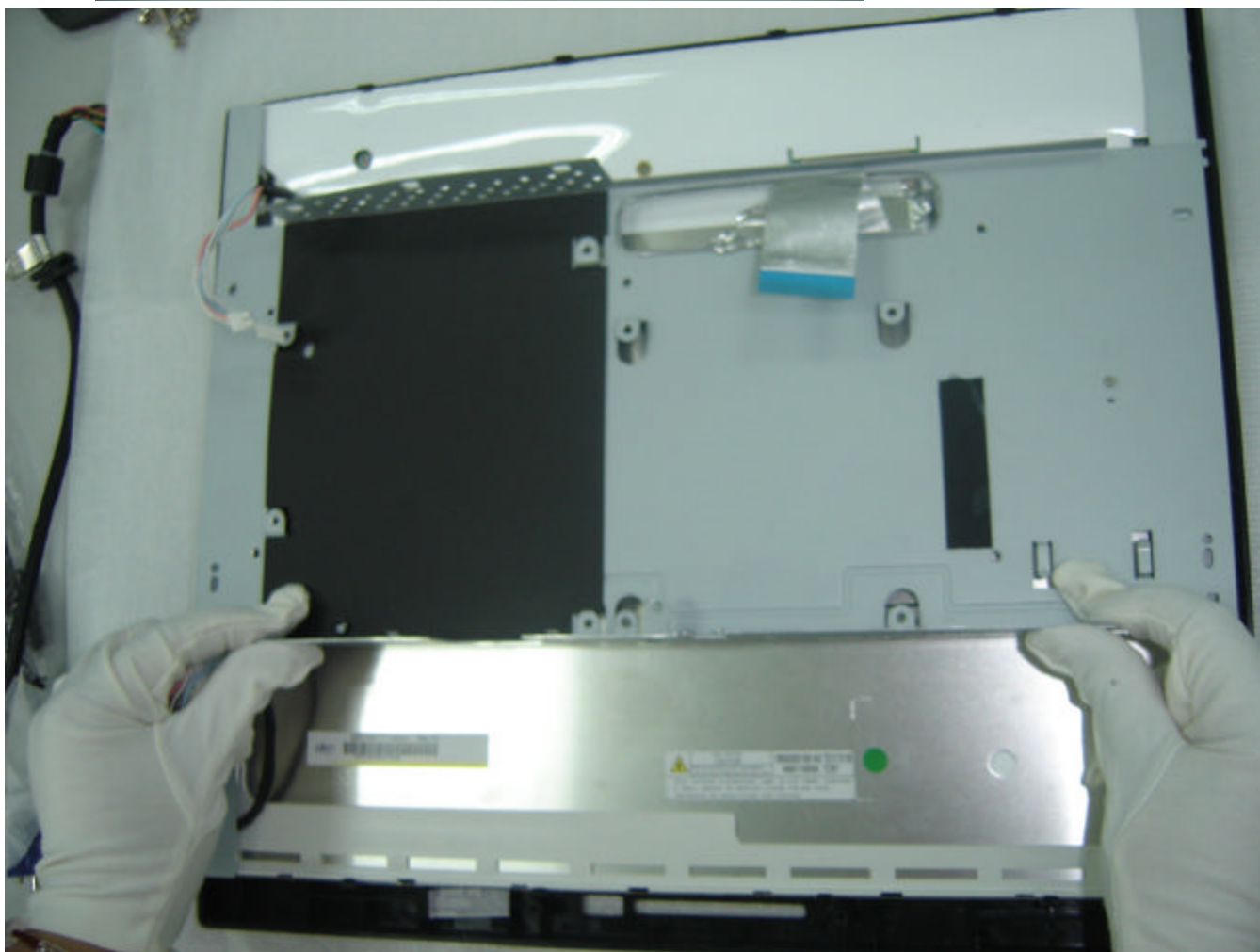
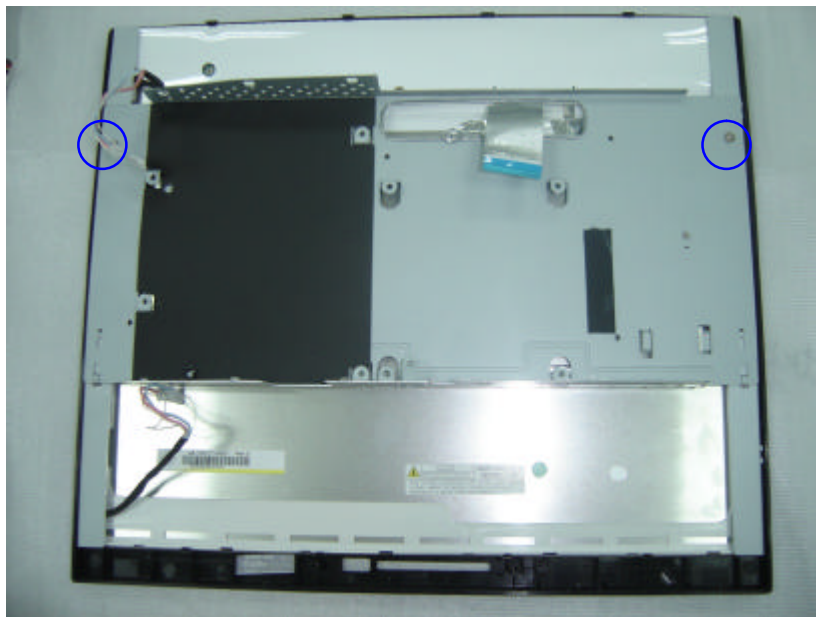
14. Pull out key wire from main board, tear off type of fix the key wire, push 2 pcs hook forward to take out the key from the bezel;

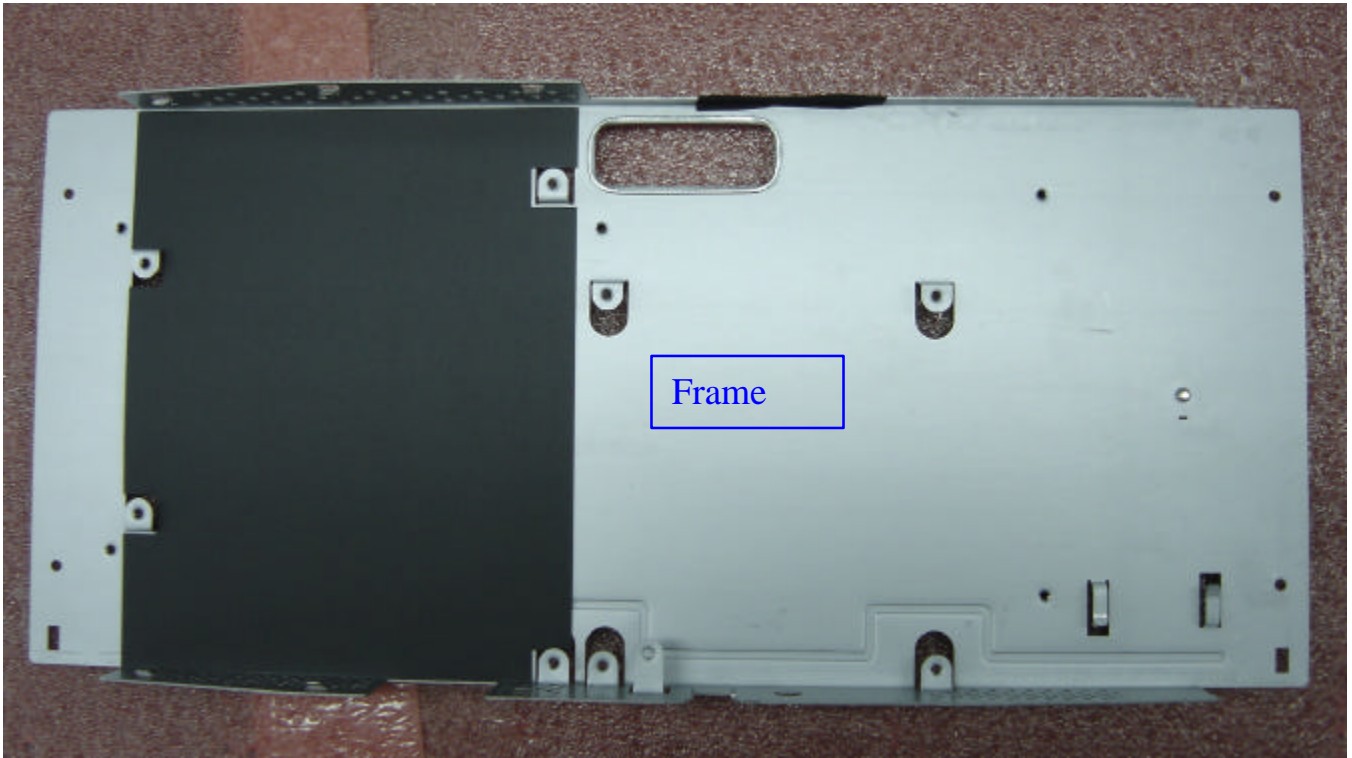




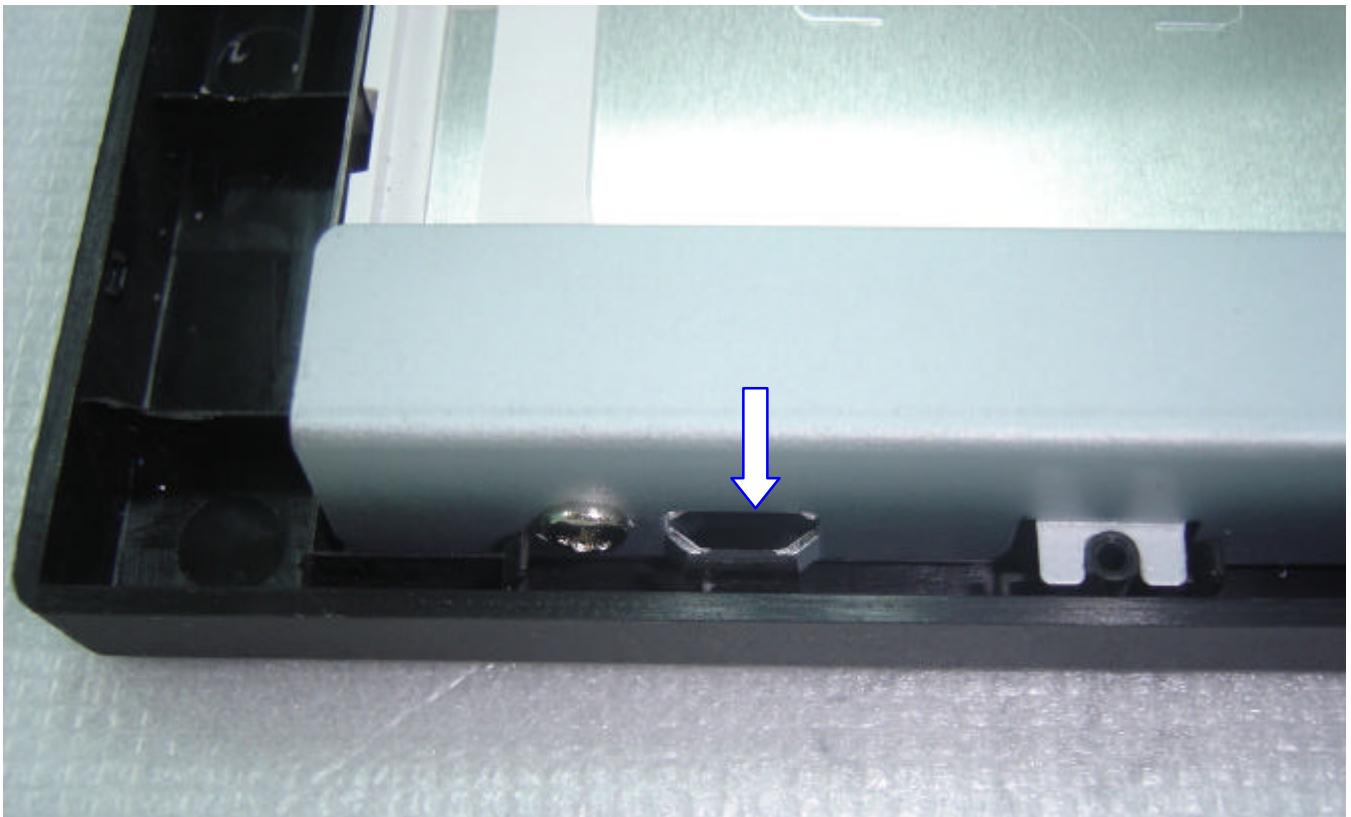


15. Unscrew 2 pcs screws





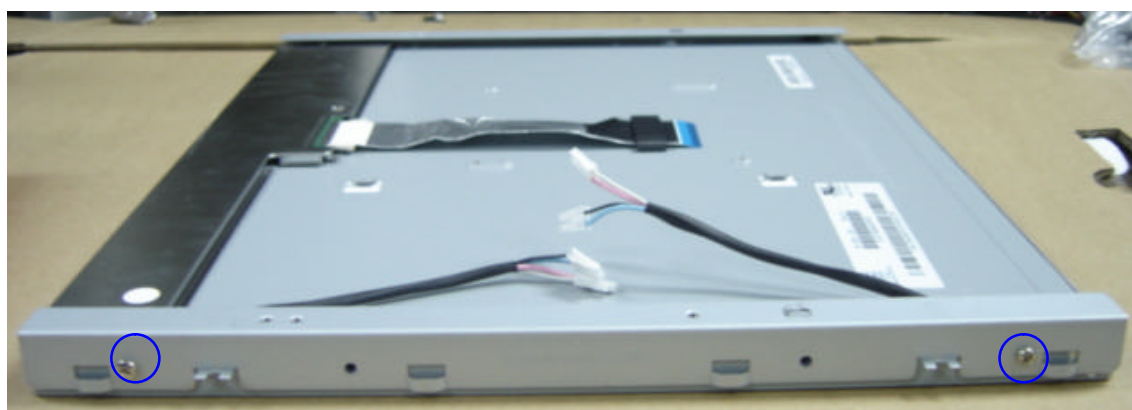
16. Release all hooks around the Panel for remove the bezel;



17. Remove bezel from the panel;



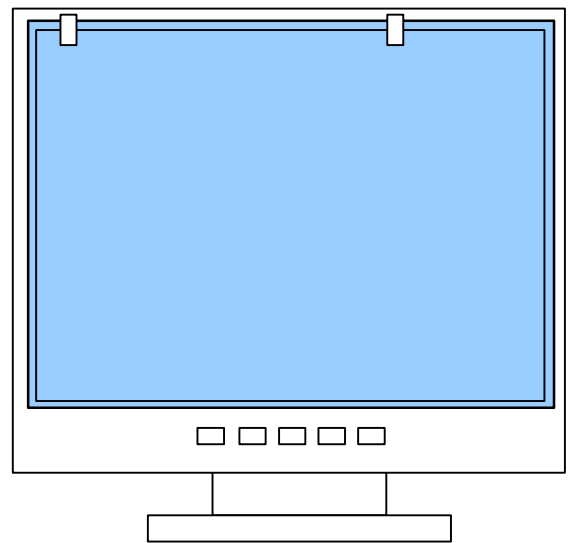
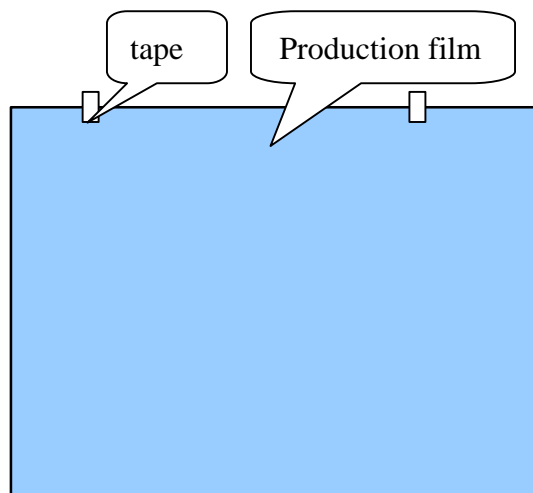
18. Unscrew 2pcs screw with at the panel side



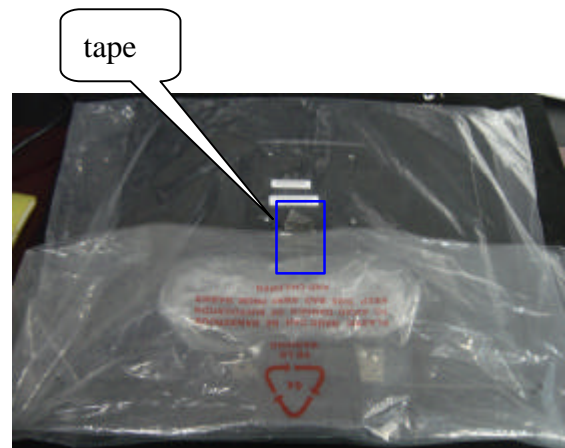


## 4 Packing Procedure

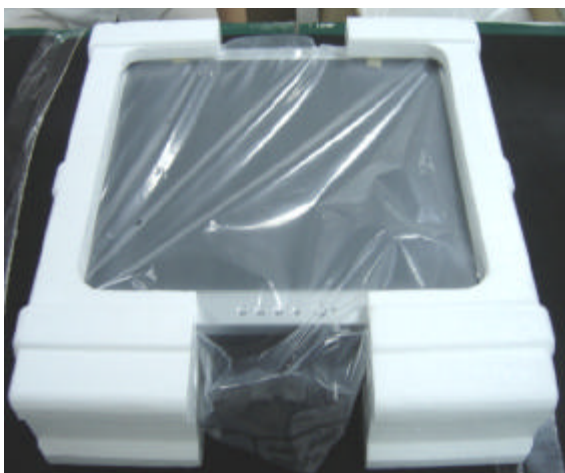
1.1 Paste production film to protect the monitor screen.(Figure 1)



1.2 Put the monitor in the PE bag and seal bag with type (Figure 2)



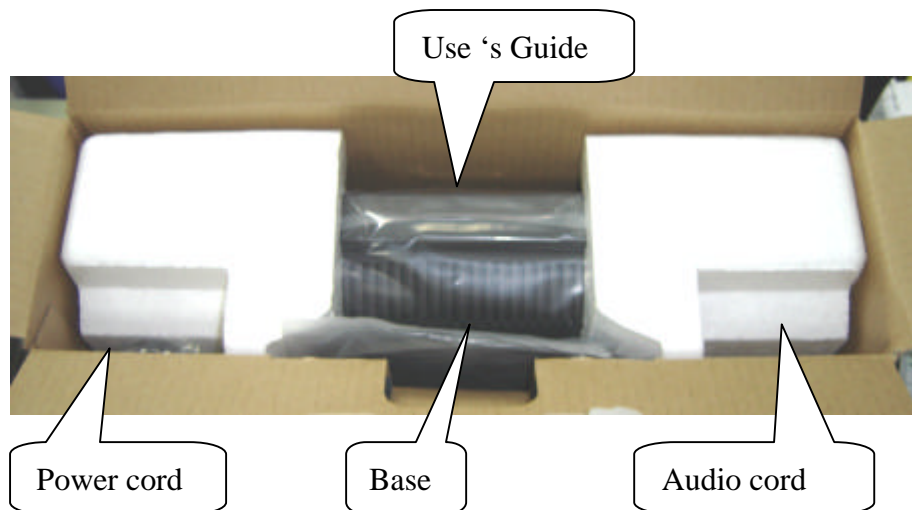
1.3 Put the cushions on the monitor.(Figure 4)



1.4 Put the base in the EPE bag. and then,place the base on the cushions ,as figure

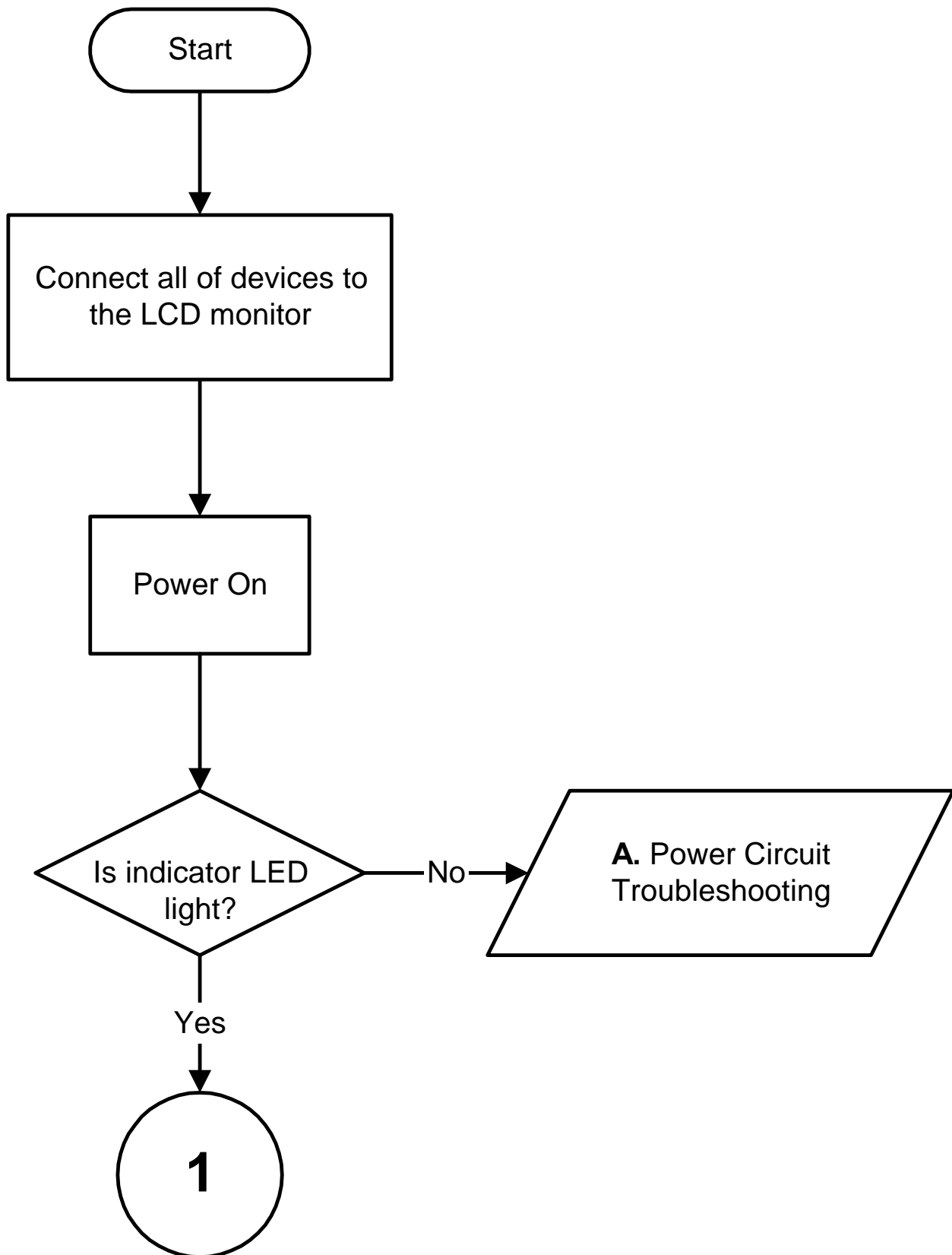


1.5 Place the monitor into the carton and then put all accessories into carton .At last, close the carton.

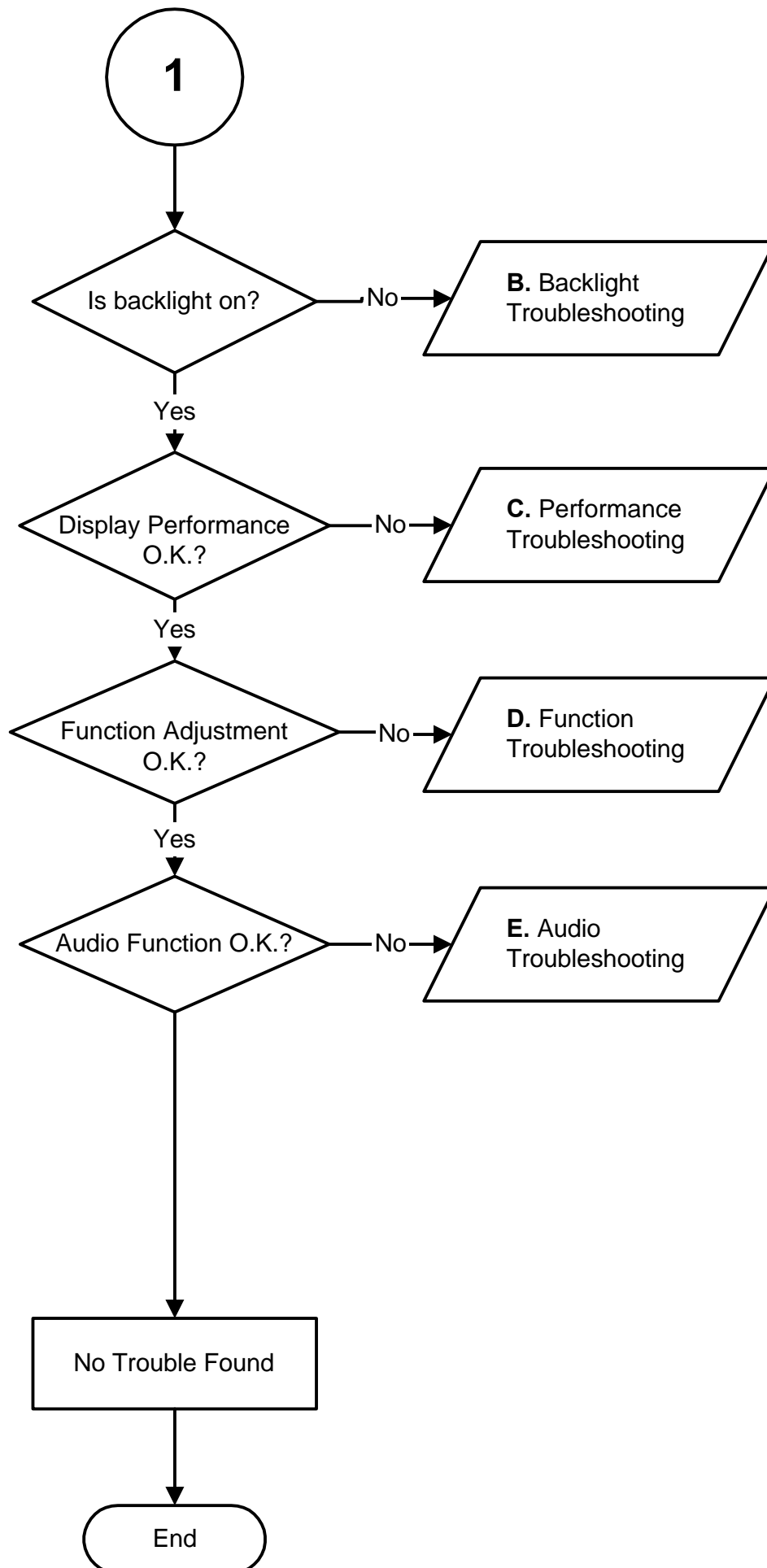


## 6. Troubleshooting Flow Chart

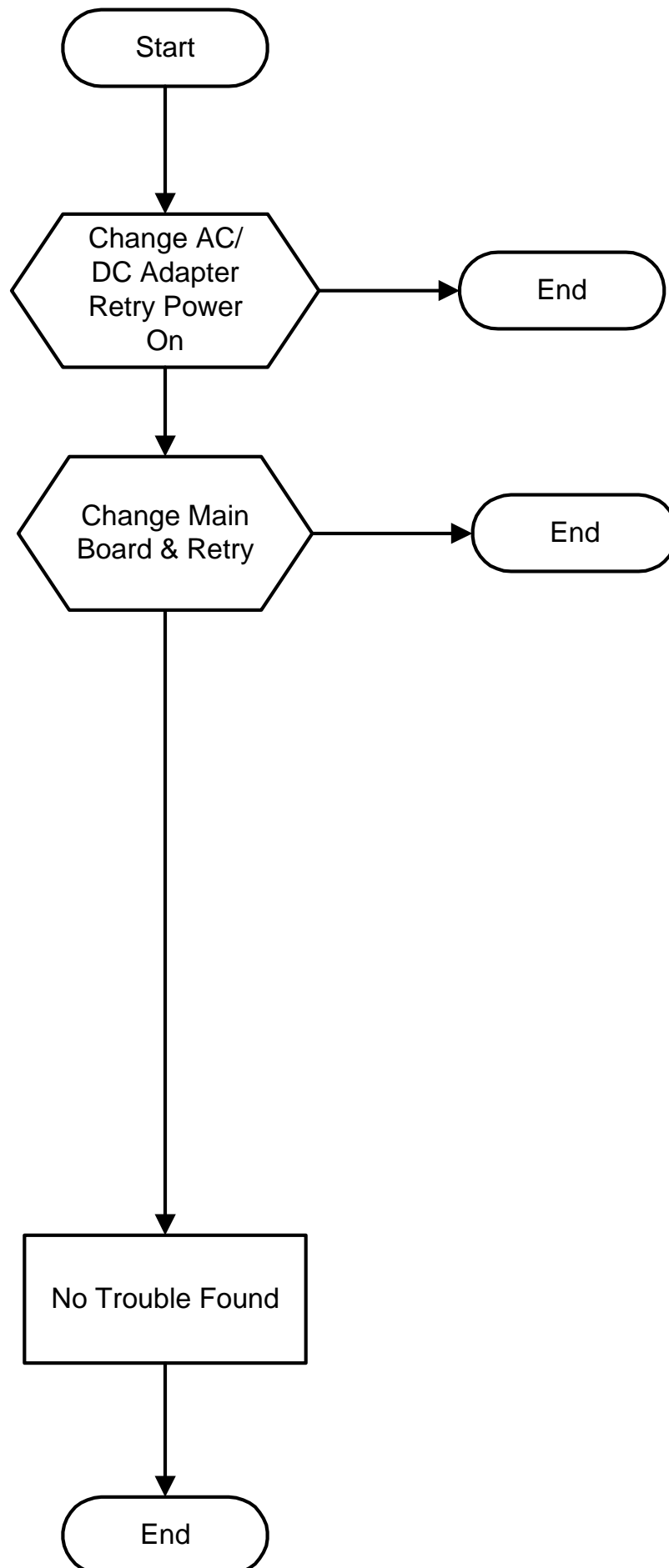
### Main Procedure



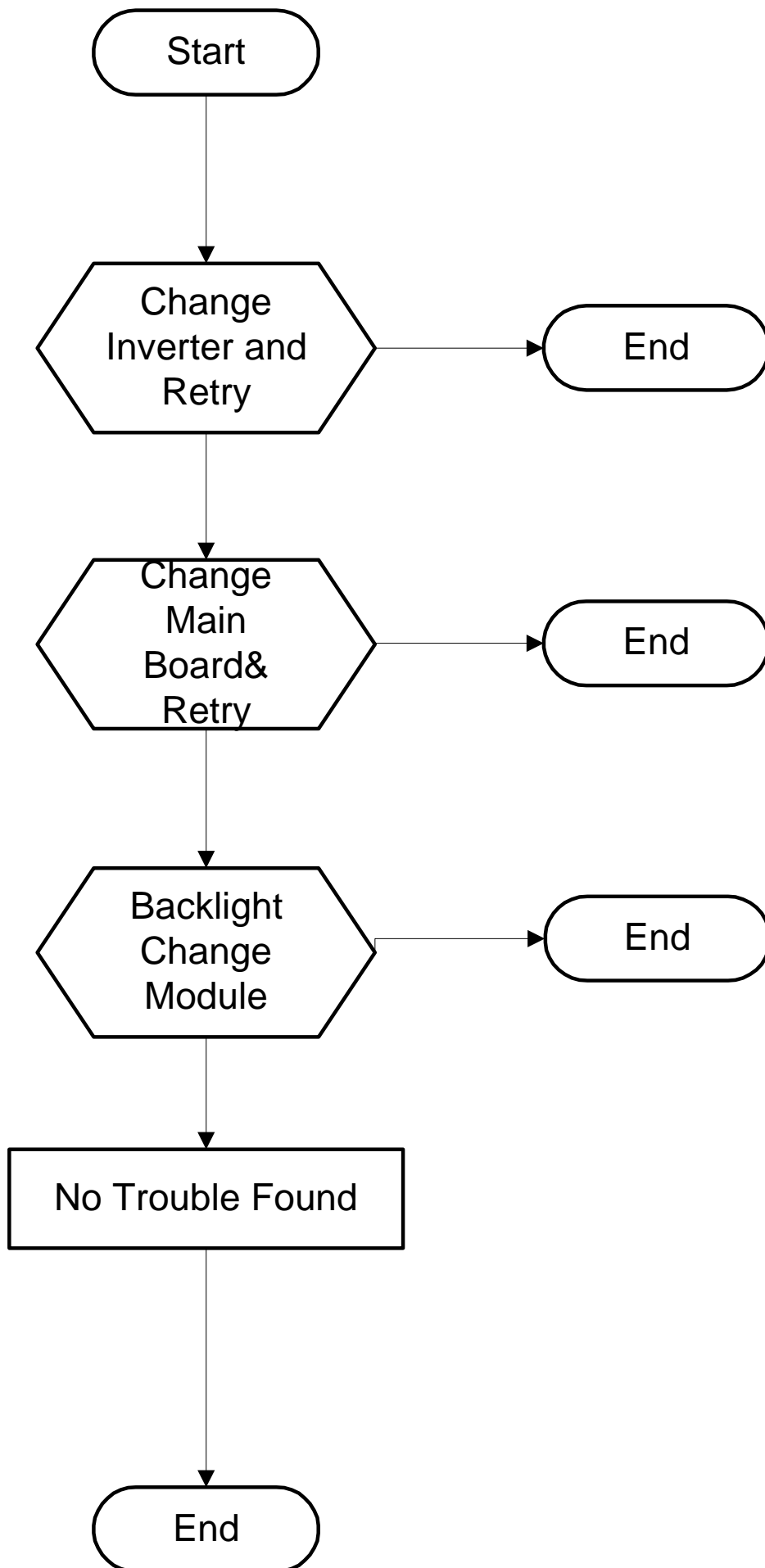




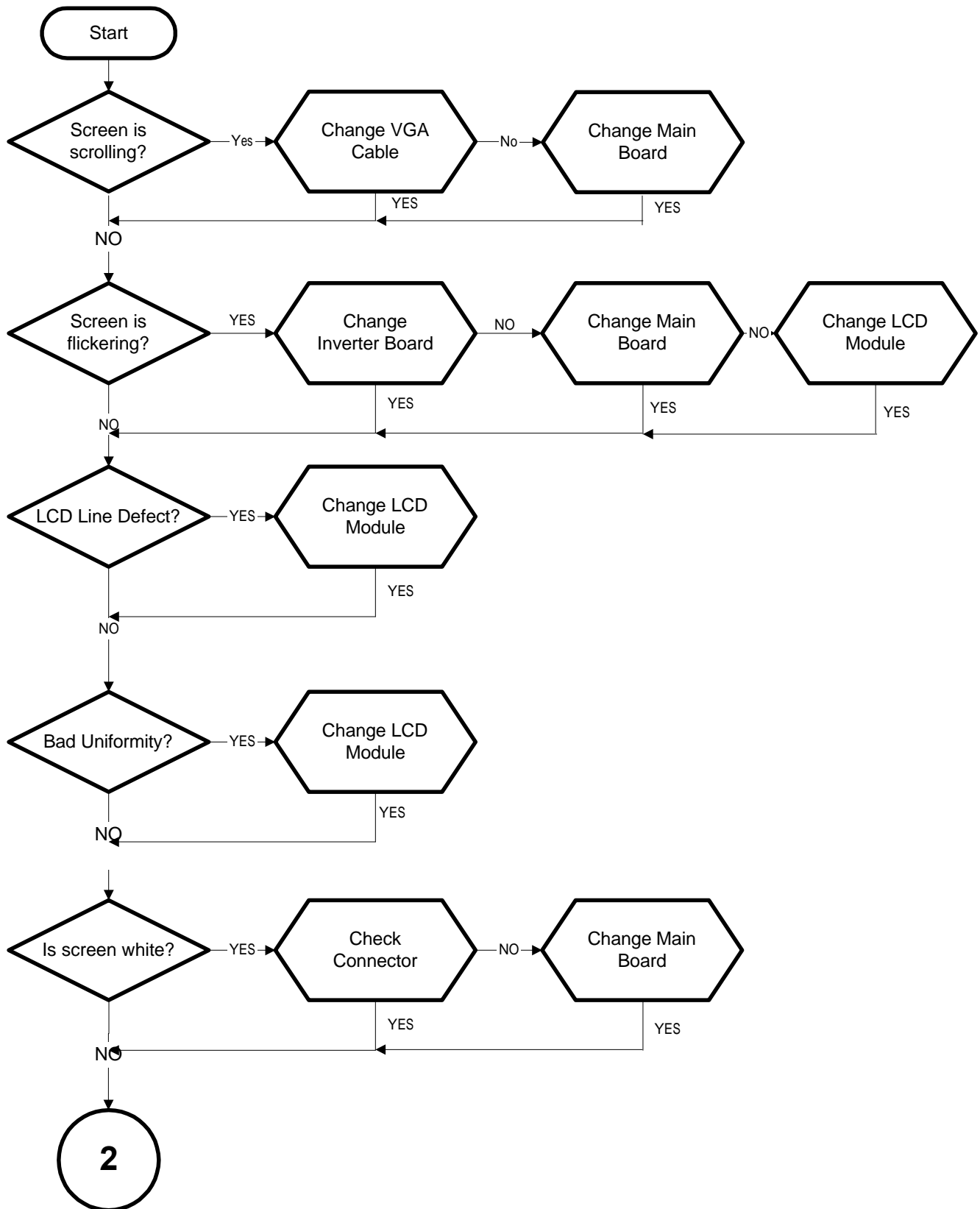
## A. Power Circuit Troubleshooting

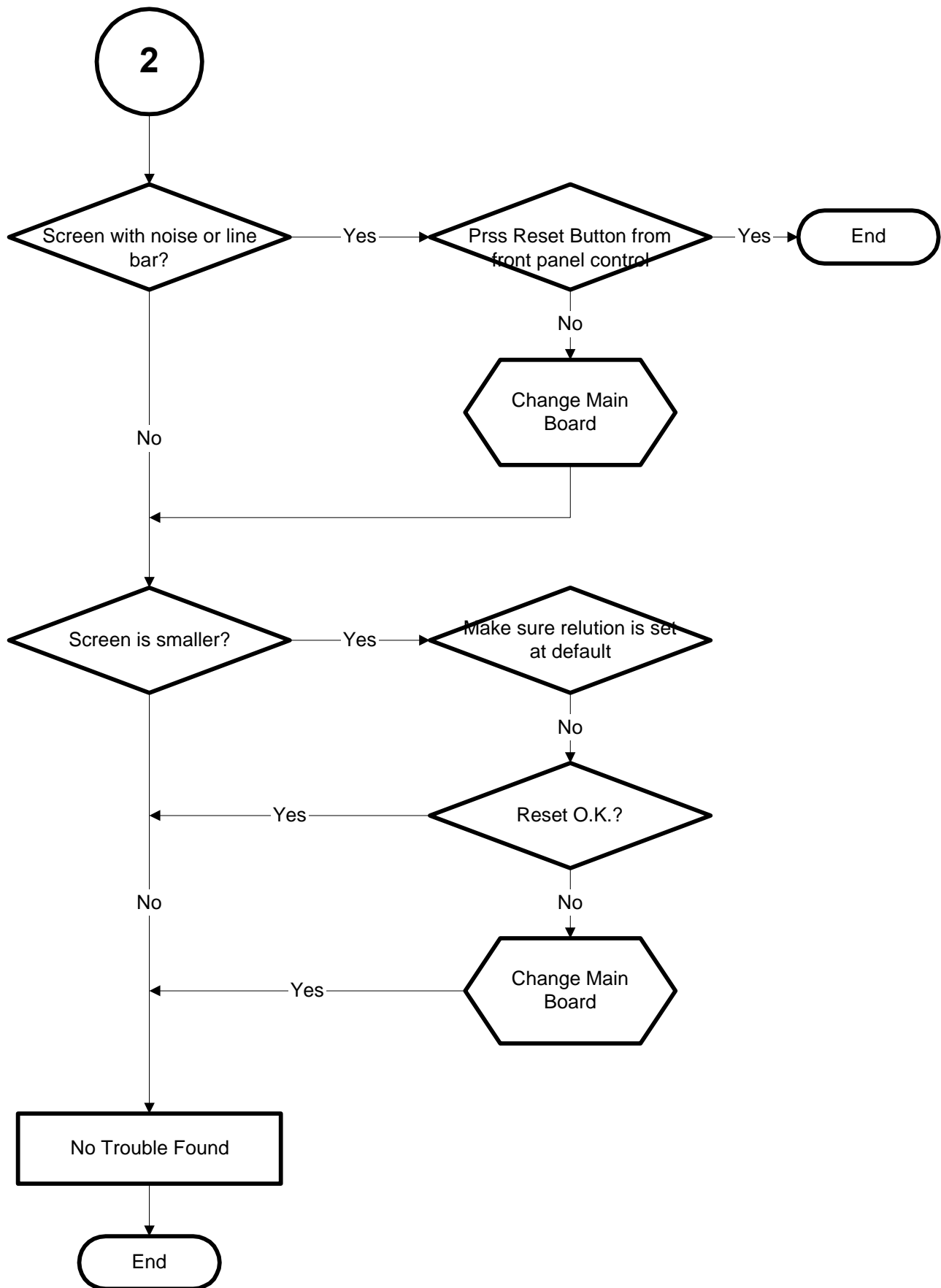


## B. Backlight Troubleshooting

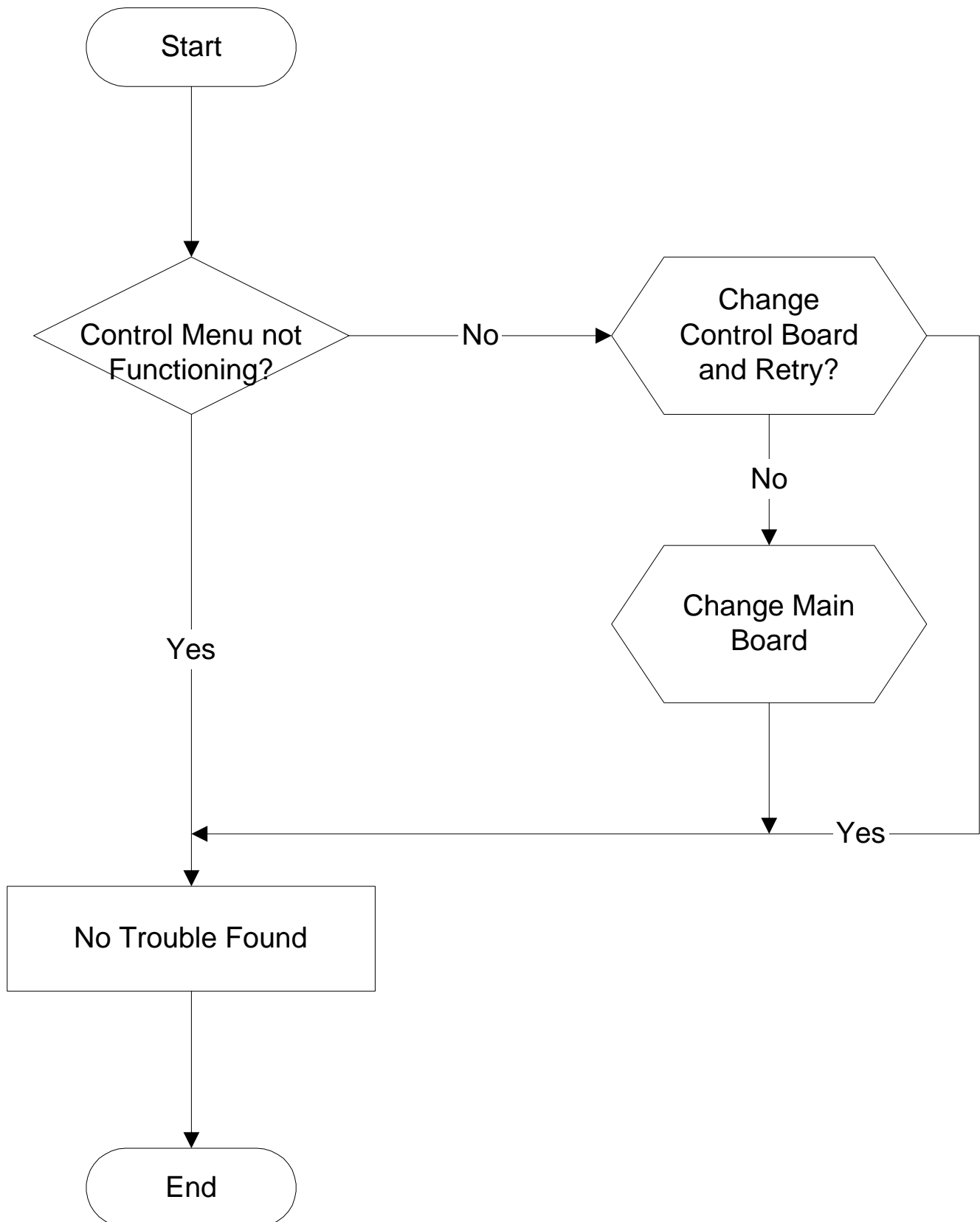


## C. Performance Troubleshooting

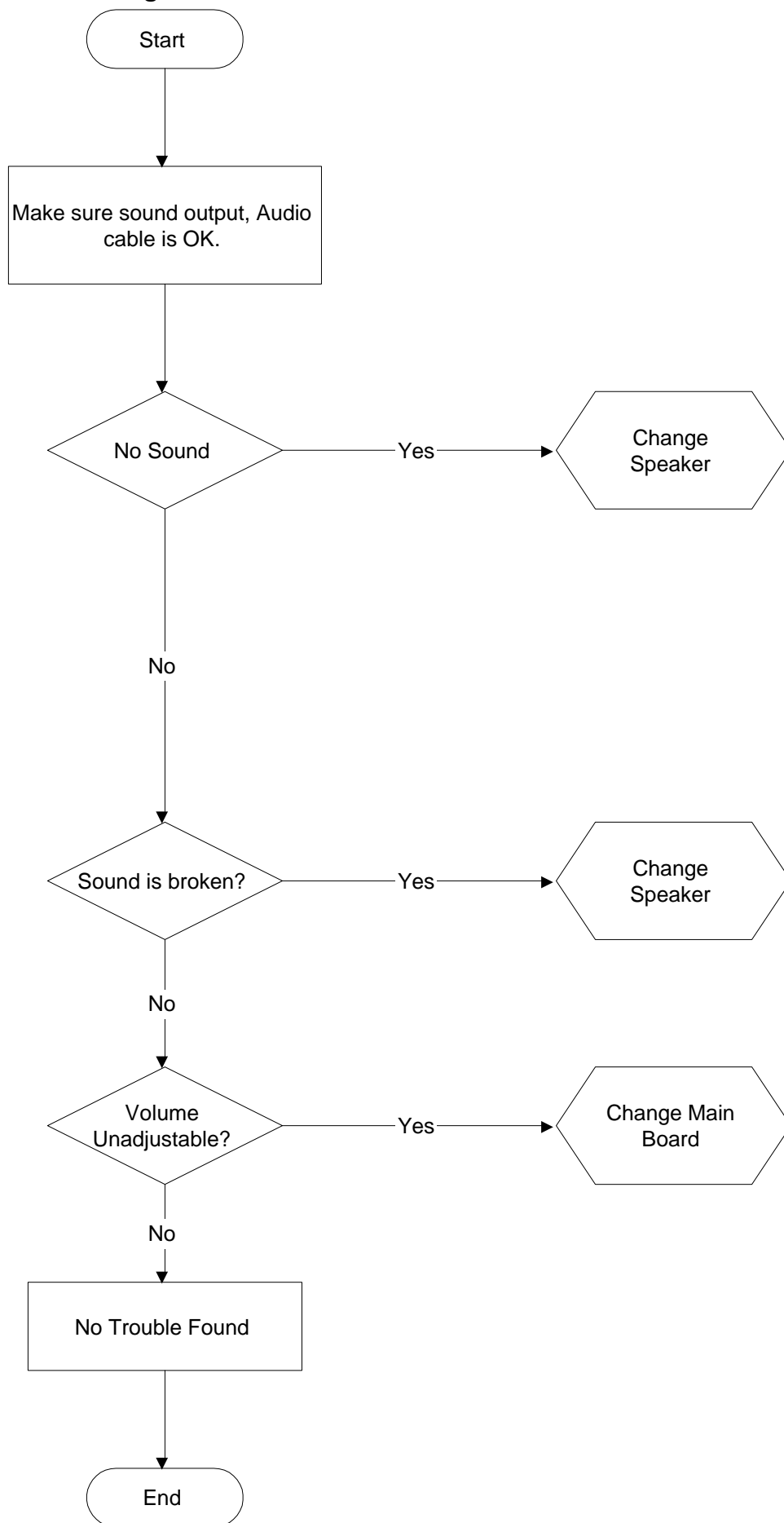




## D. Function Troubleshooting



## E. Audio Troubleshooting



## 7. Recommended Spare Parts List

### RECOMMENDED SPARE PARTS LIST (Q7b-3)

ViewSonic Model Number: VS11147

Serial No. Prefix: Q4A

Rev: 1b

Item	Description	ECR/ECN	ViewSonic P/N	Ref. P/N	Location	Universal number#
1	<b>Accessories:</b>		A-00005760	W40218A022631		
2	<b>PC Board Assembly:</b>		B-00005755	XLMF179040001		
3	Main Board Re 1.3 For Innolux Panel	Added on 10/19/06	B-00008140	XLMF1704040002		
4	Key Boardd LM1704R RGB+Audio		B-00005756	XLMF179050006		
5	Key Board LM/LM1704 Innolux Pane	Added on 10/19/06	B-00008141	XLMF1704050002		
6	Power Board + Inverter Board		B-00005757	XLMF1700390003		
7	Power Board + Inverter Board 2nd Source	Added on 10/19/06	B-00008128	XLMF1700390004		
8	Power Board + Inverter Board for Innolux Panel	Added on 10/19/06	B-00008142	XLMF1700390015-SH		
9	<b>Cabinets:</b>					
10	Base Assembly	ECN No. MN0605005 on 10/19/2006	C-00005778	XLMLM02280001		
11	COVER(HINGE) ABS PA757 Black		C-00005782	P70EAF26LM010-A		
12	Front Panel - Bezel Black	ECN No. MN0605021 on 10/19/06	C-00005783	P727AF26LM020-C		
13	<b>Cables:</b>					
14	AUDIO CABLE 26AWG UL2547 L=1800mm 6C BLACK		CB-00005758	W0026918A0142		
15	RGB CABLE 18AWG UL20276 L1500mm		CB-00005759	W0318715AQ261		
16	RGB Cable 30A 15 Pin to 2* Pin For All Panels Except CMC	Added on 10/19/06	CB-00008050	W0330715AQ261		
17	<b>Documentation:</b>					
18	Blank Label LM/MONITOR		DC-00005754	F103010LM0001		
19	Safety Label LM/F1704 L80.5*W60.5mm	Updated and Replaced Part on 08/15/06	DC-00005773	F102506170403		
20	USER'S GUIDE LM/LM1704ENGLISH		DC-00008045	F102506170404		
21				F102506170405		
22			DC-00005774	F000217043001		
23	<b>Electronic Components:</b>					
24	LCD MODULE M170E5-L09 SXGA CMO		E-00005791	E34722170SC01		
25	Innolux Panel (LCD Module)	Updated on 8/15/06	E-00008013	E34M02170J001		
26	LCD Module - SVA Panel 17" Lead Free	Added on 10/19/06	E-00008101	E34S22170S001-B		
27	Speaker 26AWG/UL Squareness 8Ω 2W		E-00005762	E231080200004		
28	<b>Hardware:</b>					
29	Bracket - Black Rev. 1	ECN No. MN0608053 on 10/19/06	HW-00005776	XLML1704200003		
30	HOLDER ASSY LM/F179 for RGB		HW-00005777	XLMF179210001		
31	<b>Packing Material:</b>					
32	Craft Box		P-00005779	F400717170401		
33	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm		P-00005780	F20133F179003		
34	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm		P-00005781	F20143F179003		
35	<b>Plastics:</b>					
36	FUNCTION-KEY F1704 ABS HB		PL-00005770	P763A926LM070		
37	GENERIC FOAM SET		P-00001347	30833		
38	GENERIC BOX		P-00002515	20653		
39	Panel Cover - Housing RGB +Audio	ECN No. MN0609027 on 10/19/06	PL-00005775	XLML1704110002		
40				XLML1704110004		

Remark 1: Above listed items are examples, supplier can expand the rows to add more necessary items.

Remark 2: All revised RSPLs with newly added items or any change made should be highlighted and correlated with the ECN/ECR approved by ViewSonic Corporation. This is to eliminate repeated cross checks of each item between this version and prior versions



# BOM LIST (Q7b-3)

ViewSonic Model Number: VS11147

Rev: 1a

Serial No. Prefix: Q4A

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	E-00005762	E231080200004	26AWG/UL 802W SPEAKER+SPEAKERWIRE 4P/2P+2PIN L400/145MM			1
2	N/A	E34722170SC01	LCD MODULE M170E5-L09 1280x1024 17" SXGA CMO			1
3	DC-00005774	F000217043001	USER'S MANUAL LM/LM1704 ENGLISH L210*W148mm REV:0			1
4	N/A	F001217043001	USER'S GUIDE LM/LM1704 ENGLISH L210*W148mm for Viewsonic REV:0			1
5	N/A	F001219043001	USER'S GUIDE LM/LM1904 ENGLISH L210*W148mm for viwesonic REV:0			1
6	N/A	F101415170401	MARK LM/LM1704L11*W11mm energy star			3
7	DC-00005773	F102506170403	Safety Label LM/F1704 L80.5*W60.5mm ViewSonic			1
8	DC-00005754	F103010LM0001	Blank Label LM/MONITOR L43*W10mm			1
9	N/A	F103015170401	Blank Label LM/LM1704 L50*W25mm			1
10	N/A	F103915170401	CARTON LABEL(UPC) LM/LM1704L76*W76mm FOR VIEWSONIC			1
11	N/A	F103915170402	CARTON LABEL LM/LM1704 L20*W20mm FORVIEWSONIC			1
12	N/A	F103915170403	CARTON LABEL LM/LM1704 L8*W8mm			2
13	N/A	F104506170401	RATING LABEL LM/LM1704 L10*W20mm forviewsonic			1
14	N/A	F104515170401	RATING LABEL LM/LM1704 L7*W7mm forViewsonic			1
15	P-00005780	F20133F179003	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm			1
16	P-00005781	F20143F179003	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm			1
17	N/A	F300250000070	PLASTIC BAG PE L610*W510*T0.04mm			1
18	N/A	F300250000071	PLASTIC BAG PE L260*W180*T0.03mm			1
19	N/A	F300483202001	PEARL BGA EPEL320*W200*T1.0mm FOR LM1904			1
20	P-00005779	F400718170401	CARTON C LM/LM1704 L428*W128*H438mm for Vosunis			1
21	N/A	F401422LM0001	PARTITION SUPPORTBC LM/MONITOR L800*W50*H50*T5mm			0.0588
22	N/A	F401422LM0002	PARTITION SUPPORTBC LM/MONITOR L1800*W50*H50*T5mm			0.0588
23	N/A	F401918170401	LM/LM1704 L1040*W432*H60mm			0.0046
24	N/A	F401918170402	LM/LM1704 L1170*W865*H60mm			0.0148
25	N/A	F401918170403	LM/LM1704 L1040*W865*H60mm			0.0148
26	N/A	F50301F179001	PALLET SMOKE WOOD LM/F179 L1180*W870*H120mm			0.0074
27	N/A	F50301F179002	PALLET SMOKE WOOD LM/F179 L1050*W430*H120mm			0.0023
28	N/A	F50301F179003	PALLET SMOKE WOOD LM/F179 L1050*W870*H120mm			0.0074
29	N/A	F900181000001	PE LIMPID W500*T0.03mm 1500m			0.000156
30	N/A	F900381000004	PE LIMPID L1200*W1200*T0.15mm			0.015625
31	N/A	F9008G20000002	PACKTHREAD PP WHITEW14.5mm*T0.8mm 1300m			0.000275
32	N/A	M104243004401	SCREW MACHINE STEEL +/B F 3.0* L4mm NICKEL			10
33	N/A	M104254008401	SCREW MACHINE/STEEL +/TF 4xL8mm NICKEL			4
34	N/A	M105243005401	SCREW MACHINE B(Binding) F 3.0mm L5mm NICKEL			4
35	N/A	M1052B3003401	SCREW MACHINE +/-I F 3*L3mm NI			2
36	N/A	M108253006401	screw M3X6 T			2
37	N/A	M168243010401	SCREW +/B F 3.0*L10mm NICKEL (R70GB-3010600)			2
38	N/A	M622700LM0050	panel bracket-L F179 SECC T=0.8mm			1
39	N/A	M623700LM0050	panel bracket-R F179 SECC T=0.8mm			1
40	N/A	P36AKAF010001	MYLAR L350 X W290 X T0.12MM			1
41	N/A	P395241A50001	SPEAKER SPONGE L52.5*W41*T15mm EVA 38" FOR LM1704			2
42	N/A	P440808500001	RUBBER MAT L8mm*W8mm* H5mm(Y7410051G400)			1
43	N/A	P441510A70001	(EVA) L15mm*W10mm*H11mm WITH ADHESIVE			2
44	C-00005782	P70EAF26LM010-A	COVER(HINGE) ABS PA757 C LM/LM1704 (L143*W27.5*H25mm) REV:0			1
45	C-00005783	P727AF26LM020-C	BEZEL ABS PA757 BLACK C LM/LM1704 FOR VIEWSONIC REV:0			1
46	PL-00005770	P763A926LM070	FUNCTION-KEY F1704 ABS HB BLACK-C			1
47	N/A	P791P500LM030-A	LENS PMMA NATURAL LM/LM1704&1904 REV:0			1
48	N/A	V3008000000001	50g (-60 ~+200 )			0.01
49	N/A	V5004AP150201	5000*W15*T0.25mm 25m(YW0910300002)			0.012
50	N/A	V5005A5080101	L50000*W8*T0.1mm (YW0911200007)			0.006
51	N/A	V501275024801	L75m*W48*T 0.045mm FOR VIWESONIC			0.006
52	N/A	V900505030001	L100xW40xT0.07mm			1
53	N/A	V900505030007	AL FOIL L100xW30*T0.35mm(Y78400004G*1)			4
54	CB-00005758	W0026918A0142	AUDIO CABIE 26AWG UL2547L=1800mm 6C BLACK(N65B80-1800)			1
55	CB-00005759	W0318715AQ261	RGB CABLE 18AWG UL20276L1500mm DSB15P/ JST14P-2.0BLACK C			1
56	A-00005760	W40218A022631	(CON).POWER CORD/AC UL18AWG L1500mmBLACK.C.I-SHENG125V 10A....			1
57	N/A	W47B103014002	WIRE FFC UL2896 P=1.0mm 30PIN L140mm			1
58	N/A	XLM1700390004	POWER+INVERTER BOARD12V/42W 4CCFL FSP 035-1PI01ZT(SPI)for 17"			1
59	B-00005757	XLM1700390003	POWER BOARD+INVERTER BOARDASSY LCD MONITOR 17" 12V/45W4CCFL DCAC40A3 UMEC			1
60	PL-00005775	XLM1704110002	HOUSING ASSY LM/F1704			1
61	N/A	M621700LM0190	REAR_BRACKET SECC T=1.0mm			2
62	N/A	P728AJ26LM010	housing F179 ABS HB BLACK-C			1
63	N/A	V3008000000001	50g (-60 ~+200 )			0.01
64	N/A	M628700LM0010	SUPPORTER SECC LM/F1704 REV:0			1
65	HW-00005776	XLM1704200003	BRACKET ASSY LM/F1704 BLACK C F179/LM1704/F199			1
66	N/A	M154223012801	SCREW F 3*12MM WASHER			3
67	N/A	M701900LM0050-A	Hinge SPCC LM/LM1704 REV:0			1
68	N/A	P711AJ26LM010	BRACKET(BASE)/ABS HB BLACK C LM/F199 L77.4*W43*H75.5mm			1
69	B-00005755	XLMF179040001	MAIN BOARD ASSY LM/F179W/AUDIO (Lead free )			1
70	N/A	A01F241615A21	IC EEPROM AT24C16 2500nsATMEL SOIC-8 2K*8 (SMD)	U3		1
71	N/A	A01F241622M21	IC EEPROM 24LC16BT/SN 2.5MSMICROCHIS SOP-8(SMD)			1
72	N/A	Y114AT24C16A	IC EEPROM AT24C16N- 10SC -2.7			1
73	N/A	A03C150915A51	IC LINEAR DC/DC CONVERTERAPI509-5 SOP-8L Anachip8pin (SMD)	U6 U9		2
74	N/A	A03D111703A53	IC Linear voltage converterAP117E18A SOT-223-3Pin(SMD)	U8		1
75	N/A	Y114L1117L*Q	IC L1117L-1.8V			1
76	N/A	A076863302N02	IC MCU NT68F633LG 64K 8bit NOVATEK PLCC-44P GP (SMD)	U2		1
77	N/A	A0868521N0006	IC ASIC /SCALER NT68521AEFGCS FOR RSDS PQFP128 NOVATEK(SMD)	U4		1
78	N/A	BLM1700M10113	BARE PCB LM/LCD 17" MAINBOARD 2SIDES FR-4 T1.6mmREV:1.3			1
79	N/A	C02222003J111	CAP MLCC /NPO 22PF 50V ±5%(J) 0603 TAPPING (SMD)	C8 C9 C12 C13 C21C22		6
80	N/A	C02410303K111	CAP MLCC X7R 0.01uF 50V10% 0603 TAPPING(SMD)(Y321103566*0)	C57 C58 C59 C60 C61C62 C63		7
81	N/A	Y321103566*0	CAP X7R 0.01uF K 50V SMD0603			7
82	N/A	C4021014M2222	CAP EC(S) -40-105 100uF16V ±20% (M) F5xH11mmP=2.0mm (DIP)	C85 C90 C92 C96		4
83	N/A	C4024704M2422	CAP EC -40 ° ~105 47UF/16V±20% (M) 5*H7MM P=2.0MM(DIP)	C3 C15 C37 C47 C55 C101		6
84	N/A	C4024714M3442	CAP EC -40 ° ~105 470UF16V ±20%(M) 8*12MMP=3.5MM(DIP)	C53 C64 C67 C69 C7C79 C80 C97		8
85	N/A	D00BAV9905G01	DIODE BAV99 SOT-23 GTM (SMD)	D1 D2 D5 D14		4
86	N/A	Y134BAV99C*P	FAST SWITCHING DIODE.BAV99 215mA 75V SOT-23			4
87	N/A	D0155C3614B01	DIODE ZENER ZMM55-C3V6 MINI-MELF BL(SMD)	D11		1

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
88	N/A	D0155C5102B01	DIODE ZENER ZMM 55-C5V1 LL-34 (SMD)	D16		1
89	N/A	D01FH5V102F01	DIODE ZENER FHZ5V1 LL-34 Fenghua (SMD)			1
90	N/A	Y134RLZ5B1*A	ZENER DIODE RLZ5 1B SMD3515			1
91	N/A	D0155C5614B01	DIODE ZENER ZMM55-C5V6 MINI-MELF BL(SMD)	D3 D4 D6 D7 D13		5
92	N/A	J451322006211	PIN HEADER 90° 2 x 3P PH:2.54mm black DIP	CN9		1
93	N/A	J4527200146A1	CONN WAFER P=2.0mm 14PIN(2*7PIN) 180° GRAY (DIP)	CN1		1
94	N/A	L001300201311	Chip Bead(QT2012RL030)30O ±25% 200mA SMD0805	L1 L3 L4		3
95	N/A	L431047020K11	POWER INDUCTOR DIP COIL 47uH+/-10% 1.5A 180°	L11 L14		2
96	N/A	Q441120031161	CRYSTAL QUARTZ / 12MHz 20PPM 33pF 49S CREC (DIP)	X1		1
97	N/A	R010331J10111	RES CF 3300 ±5%(J) 1/10W 0603 TAPPING (SMD)	R48 R49		2
98	N/A	R011004J10111	RES CF 1MO ±5%(J) 1/10W 0603 TAPPING (SMD)	R26		1
99	N/A	R013601J10111	RES CF 3.6KO ±5%(J) 1/10W 0603 TAPPING (SMD)	R70		1
100	N/A	R070000J30111	RES CHIP 00 ±5%(J) 1/16W603TAPPING(SMD)(Y180210000J0)	R67		1
101	N/A	R070750J30411	RES CHIP 750 ±5%(J) 1/16W 0603 TAPPING(SMD)	R2 R5 R13		3
102	N/A	R071000J30111	05: RESISTOR.RES CHIP 1000±5%(J) 1/16W 0603 TAPPING(SMD)(Y180211000J0)	R1 R3 R4 R6 R8 R9R12 R14 R23 R24 R25R27 R28 R38 R39 R5R51 R56 R57 R58 R5R60 R68 R69 R85 R8R87 R102		28
103	N/A	R071001J30111	RES CHIP 1KO ±5%(J) 1/16W0603 TAPPING (SMD)(Y180211001J0)	R7 R20 R42 R43 RR44R46 R47		7
104	N/A	R071002J30111	RES CHIP 10KO ±5%(J) 1/160603 TAPPING(SMD)(Y180211002J0)	R75 R92 R99 R100R101		5
105	N/A	R071201J30111	RES CHIP 1.2KO ±5%(J) 1/16W 0603 TAPPING (SMD)	R66 R71		2
106	N/A	R071502J30111	RES CHIP 15KO ±5%(J) 1/16W 0603 TAPPING (SMD)	R22 R35		2
107	N/A	R072701J10111	RES CF SMD 2K7 5% 1/10W 0603	R10 R11 R88		3
108	N/A	R074701J30111	RES CHIP 4.7KO ±5%(J) 1/16603TAPPING(SMD)(Y180214701J0)	R21 R33 R93 R94R95		5
109	N/A	R074702J30111	RES CHIP 47KO ±5%(J) 1/16W 0603 TAPPING (SMD)	R62 R64 R96 R97R95		5
110	N/A	R076800J10111	05: RESISTOR.RES CHIP 6800±5%(J) 1/10 0603 TAPPING(SMD).....	R90		1
111	N/A	R076801J10111	RES 6.8KO ±5%(J) 1/10W 0603 (SMD)	R34		1
112	N/A	R078200J10111	RESISTOR.RES CHIP 8200±5%(J).1/10W 0603 TAPPING(SMD).....	R55		1
113	N/A	T00T390402G01	TR GMBT3904 SOT-23 GTM (SMD)	Q1 Q2 Q3		3
114	N/A	T003904102R21	MMBT3904LT1 SOT-23 ROM 3PIN (SMD)			3
115	N/A	Y11474LVC149	IC COMS 74LVC14 SO- 14 TI	U1		1
116	N/A	Y11474TDA7496S	IC LINEAR 10P AUDIO AMP TDA7496L	U5		1
117	N/A	Y134BAT54CWP	SCHOTTKY RECTIFIER DIODE BAT54CW	D15		1
118	N/A	Y134SK34***V	SCHOTTKY RECTIFIER DIODE.SK34 3A 40V SMD	D12		1
119	N/A	Y134SR34***Q	SCHOTTKY RECTIFIER DIODE.SK34 3A 40V SMD			1
120	N/A	Y134SS14***Q	SCHOTTKY RECTIFIER DIODE SS14 1A 40V SMA/D0-214AC	D10		1
121	N/A	Y180211802J0	RES CHIP 0603 1/16W 18KO ±5%	R61 R63		2
122	N/A	Y180222001J0	RES SMD0603 1/10W 2KO.± 5%	R29 R30 R31 R32 R65		5
123	N/A	Y180222209J0	RES CF SMD 22R 5% 1/10W 0603	R54 R89		2
124	N/A	Y321101560*0	CAP MONO-SMD 100PF 50V NPO J 0603	C17 C18 C19 C26 C68C73		6
125	N/A	Y321104765*0	CAP Y5V 0.1uF Z 25V SMD0603	C1 C4 C6 C7 C11 C16C28 C29 C30 C31 C32C33 C35 C36 C38 C3C40 C41 C42 C43 C4C45 C46 C48 C49 C5C51 C54 C56 C65 C7C78 C81 C83 C84 C8C87 C88 C91 C93 C9C98 C99 C100		44
126	N/A	Y321105665*3	CAP C SMD 1U +80-20% 16V Y5V 0603	C14 C27 C66 C70 C71C72 C102		7
127	N/A	Y502356008*1	BEAD CORE 3.5*6*0.8 X2	L10 L12 L13 L15		4
128	N/A	Y503102011*1	Chip Bead 1KO ±25% 100mA SMD0603	L7		1
129	N/A	Y503601022*1	CHIP BEAD.6000+/-25% 200mA SMD0805.....	L5 L8 L9		3
130	N/A	Y503601303*1	CHIP BEAD.6000 +/-25% 3A SMD1206.....	L2		1
131	N/A	Y640307001*1	JACK PHONE EAR (TJ312-5BP.1)	CN12		1
132	N/A	Y64115HB04*1	CONNECTOR M 180°/2.0mm 1 ROW 4P	CN7		1
133	N/A	Y64115HB08*1	CONNECTOR 180°.2mm 8Pin.....	CN3		1
134	N/A	Y641520030*1	CONNECTOR FFC RIGHT/BOTTOM 1.0mm SINGLE 30PIN	CN5		1
135	B-00005756	XLMF179050006	KEY BOARD ASSY LM/F179 LM1704R RGB+AUDIO			1
136	N/A	BLMF179K10110	BARE PCB LM/F179 KEY BOARD 1SIDE FR-1 T1.6mm REV:1.0			1
137	N/A	R3620-4100020	TACT SWITCH 6x6x5mm 180°	SW1 SW2 SW3 SW4 SW5		5
138	N/A	R4003-0C00000	LED3F F100-S10 GREEN-YELLOW LTL-1BEDJ.....	D17		1
139	N/A	W432288C12702	WIRE HARNESS UL1007 28 AWG 8PIN P=2mm 90° L270mm K5ARH F 14*F 10*L15mm			1
140	HW-00005777	XLMF179210001	HOLDER ASSY LM/F179 for RGB			1
141	N/A	M627700LM0050	frame F179 SECC T=0.8mm			1
142	N/A	P36AHAE050001	mylar-bottom GK-17 T=0.45mm BLACK			1
143	N/A	M420202010001	EATHER PLATE COPPER T=0.2mm			2
144	N/A	M1052B3003401	SCREW MACHINE 1 F 3*L3mm NI			2
145	N/A	P610050010001	L15*W8*T7.2mm			2
146	N/A	XLMF179380002	SHIELD ASSY LM			1
147	N/A	M644200LM0030	shield SPT T=0.3mm			1
148	N/A	P36AHAD050001	MYLAR L158*W156*T0.5MM GK-17 BLACK			1
149	C-00005778	XLMLM02280001	BASE ASSY LM/LM1702 FOR Atlantis			1
150	N/A	P610051010001	LM/199 rubber F 17*T2mm black-c			4
151	N/A	P74AA926LM170	BASE ABS HB BLACK C LM/LM1702 FOR Atlantis REV:0			1

# BOM LIST (Q7b-3) "SVA Panel"

ViewSonic Model Number: VS11147

Rev: 1b

Serial No. Prefix: Q4A

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	E-00005762	E231080200004	26AWG/UL 8Q2W SPEAKER+SPEAKERWIRE 4P/2P+2PIN L400/145MM			1
2	N/A	E34S22170S001	LCD MODULE SVA170SX01TB1280×1024[SX] 17" LVDS SVANEC LEAD FREE			1
3	DC-00005754	F103010LM0001	Blank Label LM/MONITOR L43*W10mm			1
4	N/A	F103010LM0003	Blank Label LM/MONITOR L85*W24mm			1
5	P-00005780	F20133F179003	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm			1
6	P-00005781	F20143F179003	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm			1
7	P-00006586	F300250000070	PLASTIC BAG PE L610*W510*T0.04mm			1
8	N/A	F300250000071	PLASTIC BAG PE L260*W180*T0.03mm			1
9	N/A	F300483202001	PEARL BGA EPE L320*W200*T1.0mm FOR LM1904			1
10	N/A	F400717LM0203	CARTON B LM/LM1704 L430*W125*H437mm			1
11	N/A	F401422LM0001	PARTITION SUPPORTBC LM/MONITOR L800*W50*H50*T5mm			0.0588
12	N/A	F401422LM0002	PARTITION SUPPORTBC LM/MONITOR L1800*W50*H50*T5mm			0.0588
13	N/A	F401918170401	LM/LM1704 L1040*W432*H60mm			0.0046
14	N/A	F401918170402	LM/LM1704 L1170*W865*H60mm	ZP		0.0148
15	N/A	F401918170403	LM/LM1704 L1040*W865*H60mm	ZP		0.0148
16	N/A	F50301F179001	PALLET SMOKE WOOD LM/F179 L1180*W870*H120mm			0.0074
17	N/A	F50301F179002	PALLET SMOKE WOOD LM/F179 L1050*W430*H120mm			0.0023
18	N/A	F50301F179003	PALLET SMOKE WOOD LM/F179 L1050*W870*H120mm			0.0074
19	N/A	F900181000001	PE LIMPID W500*T0.03mm 1500m			0.000156
20	N/A	F9008G2000002	PACKTHREAD PP WHITE W14.5mm*T0.8mm 1300m			0.000275
21	N/A	M104243004401	SCREW MACHINE STEEL +/B Φ3.0* L4mm NICKEL	ZS		11
22	N/A	M104254008401	SCREW MACHINE/STEEL +/TΦ4xL8mm NICKEL			4
23	N/A	M105244005401	SCREW MACHINE BINDING Φ4.0*L5mm NICKEL with toothed lock washers			1
24	N/A	M108253006401	SCREW MACHINE/ Φ3*L6mm NI NICKEL	ZS		1
25	N/A	M168243010401	SCREW +/B Φ3.0*L10mm NICKEL(R70GB-3010600)			2
26	N/A	M621700LM0480-E	Bracket SECC LM/LM1704(RGB CABEL) FOR ViewSonic REV:0	ZM		1
27	N/A	M622700LM0050	panel bracket-L F179 SECC T=0.8mm			1
28	N/A	M623700LM0050	panel bracket-R F179 SECC T=0.8mm	ZS		1
29	N/A	P36A3A2010001	MYLAR L136*W124*T0.188mm			1
30	N/A	P36AKAF010001	MYLAR L350 X W290 X T0.12MM			1
31	N/A	P391510700001	SPEAKER SPONGE L15*W10*T7.0mm			1
32	N/A	P395241A50002	SPEAKER SPONGE L52.5*W41*T15mm EVA 25° FOR LM1704			2
33	N/A	P441200B30001	RUBBER CUSHION Φ12*H23.5mm			1
34	N/A	P441508980001	RUBBER CUSHION /RUBBER L15*W8*T9.8mm BLACKL15*8*9.8 BLACK			2
35	N/A	P441510A70001	(EVA) L15mm*W10mm*H11mm WITH ADHESIVE			2
36	C-00005782	P70EAF26LM010-A	COVER(HINGE) ABS PA757 C LM/LM1704 (L143*W27.5*H25mm) REV:0			1
37	C-00005783	P727AF26LM021-C	BEZEL ABS PA757 BLACK C LM/LM1704 FOR ViewSonic REV:1			1
38	PL-00005770	P763A926LM070	FUNCTION-KEY F1704 ABS HB BLACK-C			1
39	N/A	P791P500LM030-A	LENS PMMA NATURAL LM/LM1704&1904 REV:0			1
40	N/A	V3008000000001	GLUE 50g/BOTTLE (: -60℃→+200℃)			0.01
41	N/A	V5004AP150201	ADHESIVE TAPE L25000*W15*T0.25mm 25m/ROLL(YW0910300002)			0.012
42	N/A	V5005A5080101	L50000*W8*T0.1mm (YW0911200007)			0.006
43	N/A	V501275024801	L75m*W48*T 0.045mm FOR VIWESONIC			0.006
44	N/A	V900505030001	AL FOIL L100xW40xT0.07mm			1
45	N/A	V900505030007	AL FOILL100xW30*T0.35mm(Y78400004G*1)			1
46	CB-00005758	W0026918A0142	AUDIO CABIE 26AWG UL2547 L=1800mm 6C BLACK			1
47	CB-00008050	W0330715AQ261	RGB CABLE 30AWG UL20276 L1500mm 15PIN TO 2*8PIN BLACK C			1
48	A-00005760	W40218A022631	(CON).POWER CORD/AC UL18AWG L1500mmBLACK.C.I-SHENG125V 10A....			1
49	N/A	W47A103019501	WIRE FFC CY050408001 P=1.0mm 30PIN L195mm HUNG FU			1
50	N/A	W47B100825001	WIRE FFC FFCC0605T2250EC P=1.0mm 8PIN L250mm			1
51	N/A	XL1M1700390014	POWER BOARD+INVERTER BOARD ASSY PI-SB03 +24V +5V (W- GROUND) LM/17"/19" LCD MONITOR FOR VIEWSONIC			1
52	N/A	BLM1700P60210	BARE PCB LM/17"×19"LCD(FOR VIEWSONIC) POWER+INVERTER BOARD 1SIDE CEM-1 T1.6mm REV:1.0			1
53	N/A	XL1M1704040001	MAIN BOARD ASSY LM/F1704/F1904 ( 2 sides FR-4 T1.6mm REV:1.0)			1
54	N/A	A01F241615A21	IC EEPROM AT24C16 2500ns ATMEL SOIC-8 2K*8 (SMD)	U4		1
55	N/A	A03D111703A53	IC Linear voltage converter AP1117E18A SOT-223- 3Pin(SMD)	REG2		1
56	N/A	A03D111703U01	VOLTAGE REGULATOR LD1117-18-A SOT-223 3PIN 1.8V UTC (SMD)			1
57	N/A	A03D111703A54	IC LINEAR VOLTAGE REGULATOR AP1117E33A SOT-223 ANACHIP (SMD)	REG1		1
58	N/A	A03D111703G03	IC LINEAR IC VOLTAGE REGULATOR GL1117A-3.3 (INPUT 4.8-12V OUTPUT 3.3V) SOT-223 GTM LeadFree (SMD)			1
59	N/A	A03K206819A41	LINEAR IC AUDIO AMPLIFIER APA2068KA1 SOP-16 ANPEC LEAD FREE (SMD)	UA1		1
60	N/A	A07TV51202M02	IC MCU MTV512GMG 64K MYSON LQFP-48P Lead Free (SMD)	U3		1
61	N/A	A08D2023R2001	IC ASIC/SCALER RTD2023LPCC-48P REALTEK Lead Free(SMD)	U1		1
62	N/A	BLM17A4M10300	PCB printing LM/F1704/F1904 FOR mainboard 2sides FR-4 T1.6mm REV:1.1			1
63	N/A	C02210003J111	CAP MLCC NPO 10pF 50V ±5%0603 TAPPING (SMD)	C15 C18 C22 C46 C47		5
64	N/A	C02212003J111	CAP MLCC /NPO 12PF 50V±5%(J) 0603 TAPPING (SMD)	C26		1
65	N/A	C02222003J111	CAP MLCC /NPO 22PF 50V±5%(J) 0603 TAPPING (SMD)	C25		1
66	N/A	C02310501K111	CAP MLCC X5R 1uF 16V ±10%(K) 0603 TAPING (SMD)	CA5 CA6 CA8		3
67	N/A	C02410403K111	CAP MLCC X7R 0.1UF/50V±10%(K) 0603 TAPPING(SMD)	C2 C3 C4 C5 C6 C8 C9 C11 C12 C13 C14 C15 C16 C18 C19 C21 C22 C23 C28 C30 C31 C40 C42 C43 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 CA1 CA3 CA4		38
68	N/A	C02447302K111	CAP MLCC/ X7R 0.047uF /25V±10%(K) 0603 TAPPING(SMD)	C24 C32 C35 C36 C37 C39		6
69	N/A	C02847401M111	CAP MLCC Y5V 0.47uF 16V±20%(M) 0603 TAPPING (SMD)	C33		1
70	N/A	C4021006M2431	CAP EC(S) -40~105℃ 10uF 25V ±20% (M) Φ5×H7mm P=2.5mm (DIP)	C29 C41 C44		3
71	N/A	C4021014M2532	CAP EC -40~105℃ 100uF/16V ±20%(M) Φ6.3×H P=2.5mm (DIP)	CA2 EC2 EC3 KS		3
72	N/A	C4022204M2322	CAP EC -40~105℃ 22UF/16V ±20%(M) ⌀5*H5MM P=2.0MM(DIP)	C1 C10 C17 C20		4

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
73	N/A	C4022214M3232	CAP EC -40~105°C 220UF /16V ±20%(M) Φ6.3*H7mm P=2.5mm (DIP)	C45 EC1		2
74	N/A	C4022296M2122	CAP EC -40°C~105°C 2.2uF/25V ±20%(M) Φ4*H5mm P=2.0mm (DIP)	CA7		1
75	N/A	C4024704M2242	CAP EC -40°C ~105°C 47uF/16V Φ5*11mm M DIP	C7 KS		1
76	N/A	D00BAV9905G01	DIODE BAV99 SOT-23 GTM (SMD)	D1 D2 D3		3
77	N/A	D00L414803Y11	DIODE LL4148 SOD-123 YING (SMD)	D8 D9 D10 D11		4
78	N/A	D01ZT52C03K01	ZENER BZT52C SOD-123KINGWELL 5.6V (SMD)	D4 D5 D6 D7		4
79	N/A	J4509100085C1	FFC CONNECTOR P=1mm 8PIN 90° CF16061D0T0 HANQUAN (DIP)	JP1		1
80	N/A	J4509100306H1	FFC CONN .30 PIN,1.0,DIP 180°,1 ROW,Cvilux 16301V0T or compatible	CN2		1
81	N/A	J4527200164A1	WAFER P=2.0mm 16PIN(2*8PIN) 180° GRAY (DIP)	CN3		1
82	N/A	L012121201113	BEAD CHOKE Ferrite(generalcircuit) DDY160808U121MB 120Ω 200mA 0603 (SMD)	FBA1 FBA3 FBA4 FBA5 FBA6 FBA7 FBA8 FBA9 L5		9
83	N/A	L012700201111	BEAD CHOKE Ferrite(generalcircuit) DDY160808U121MB 70Ω 200mA 0603(1608) TAPING FORD GLORY LEAD FREE (SMD)	L2 L3 L4		3
84	N/A	L013121302A11	CHIP BEAD Ferrite Chip Beads (high current) WB201209B601QLT02 120Ω 3000mA 1206 Walsin (SMD)	FB1 FB2 FB3 FB4 FBA2		5
85	N/A	Q441240047151	CRYSTAL QUARTZ/ 24MHZ30PPM 20PF 49US CRE (DIP)	Y1		1
86	N/A	R070000J20111	05: RESISTOR.RES CHIP 0Ω ±5%(J).1/8W 0603 TAPPING (SMD).....	L1 R15 R19 R24		4
87	N/A	R070220J30111	05: RESISTOR.RES CHIP 22Ω ±5%(J) 1/16W 0603 TAPPING (SMD).....	R53 R55		2
88	N/A	R070330J30111	RES CHIP 33Ω ±5%(J) 1/16W 0603 TAPPING(SMD)	R56		1
89	N/A	R070470J10111	RESISTOR.RES CHIP 47Ω ±5%(J) 1/10W.0603 TAPPING (SMD)	R16 R22 R25		3
90	N/A	R070750F30111	05: RESISTOR.CHIP RES 75Ω ±1%(F).1/16W 0603 TAPPING (SMD)(Y180217509F0)	R17 R21 R26		3
91	N/A	R071000J20111	RESISTOR.RES CHIP 100Ω±5%(J).1/8W 0603TAPPING(SMD).....	R11 R12 R18 R20 R23 R27 R58 R59 R62 R63 R64 R65 R66 R67 R68		15
92	N/A	R071001J20111	05: RESISTOR.RES CHIP 1KΩ ±5%(J) 1/8W.0603 TAPPING (SMD).....	R2 R4 R5 R7 R61 R70		6
93	N/A	R071002J20111	05: RESISTOR.RES CHIP 10KΩ±5%(J) 1/8W.0603 TAPPING(SMD).....	R50 R51 R52 R54		6
94	N/A	R071003J10111	RES CHIP 100KΩ ±5%(J) 1/1 0603 TAPPING (SMD)	R1		1
95	N/A	R071004J30111	RES CHIP 1MΩ ±5%(J) 1/16W 0603 TAPPING (SMD)	RG1		1
96	N/A	R071502F30111	RES CHIP 15KΩ ±1%(F) 1/16 0603 TAPPING (SMD)	R8 RA5		2
97	N/A	R072001J30111	RES CHIP 2KΩ ±5%(J) 1/16W 0603 TAPPING (SMD)(Y180222001J0)	R13 R14		2
98	N/A	R072200J20111	05: RESISTOR.RES CHIP 220Ω ±5%(J) 1/8W.0603 TAPPING(SMD).....	R60 R69		2
99	N/A	R072201J10111	RES CHIP 2.2KΩ ±5%(J)1/10W 0603 TAPPING (SMD)	R37 R38		2
100	N/A	R073302J30111	RES CHIP 33KΩ ±5%(J) 1/16 TAPPING(SMD)(Y180213302J0)	R10		1
101	N/A	R074701J20111	RESISTOR.RES CHIP 4.7KΩ±5%(J) 1/8W.0603 TAPPING(SMD).....	R3 R6 R28 R29 R30 R36		6
102	N/A	R074702J20111	05: RESISTOR.RES CHIP 47KΩ ±5%(J) 1/8W.0603 TAPPING (SMD).....	RA3 RA4		2
103	N/A	R076801J10111	RES CHIP 6.8KΩ ±5%(J)1/10W 0603 TAPING (SMD)	R57		1
104	N/A	R141002J20111	RES ARRAY 10KΩ ±5%(J) 1/16W 8P4R 3216 TAPPING (SMD)(Y270181002J0)	RP1 RP2 RP3 RP4		4
105	N/A	T00T390402G01	TR GMBT3904 SOT-23 GTM (SMD)	Q2 Q3 Q4		3
106	N/A	T00T390602G01	Triode GMBT3906 SOT-23 GTM (SMD)	Q7 Q8 Q9 Q10		4
107	N/A	T01A340102A21	XSTR AO3401/ST3401, SOT- 23.3 , Alpha & Omega/ST	Q1		1
108	N/A	W432264C21301	WIRE HARNESS UL1007 26AWG 4PIN P=2mm 180° L130mm			1
109	N/A	Y64115HB04*1	CONNECTOR M 180°/2.0mm 1ROW 4P	CNA1		1
110	N/A	Y64115HB06*1	CONNECTOR 180° 2mm 6PIN	CN1		1
111	B-00008141	XLMI704050002	KEY BOARD ASSY LM/LM1704 For Realtek			1
112	N/A	BLMI704B10212	BARE PCB LM/MR1704 BUTTON BOARD 1SIDE FR-1 T1.6mm REV:1.2			1
113	N/A	D462213405201	LED Φ4*H5.5mm P=1.5mm ORA/GREEN BULK 3PIN fold 90°	LED2		1
114	N/A	J4509100085C1	FFC CONNECTOR P=1mm 8PIN 90° CF16061D0T0 HANQUAN (DIP)	CN1		1
115	N/A	P764P295LM010	SWITCH PA66 BLACK LCDMONITOR SERIES REV:0	SW1 SW2 SW3 SW4 SW5		5
116	PL-00005775	XLMI704110002	HOUSING ASSY LM/F1704 black c RGB+AUDIO			1
117	N/A	M621700LM0190	REAR BRACKET SECC T=1.0mm			2
118	N/A	M628700LM0010	SUPPORTER SECC LM/F1704 REV:0			1
119	N/A	P728AJ26LM010	housing F179 ABS HB BLACK-C			1
120	N/A	V3008000000001	GLUE 50g/BOTTLE (: -60°C~+200°C)			0.01
121	N/A	XLMI704150001	AUDIO BOARD ASSY LM/F1704 (PCB 1SIDE FR-1 T1.6mm REV:1.0)			1
122	N/A	BLMI704A10110	BARE PCB LM/F1704 AUDIO BOARD 1SIDE FR-1 T1.6mm REV:1.0			1
123	N/A	C02410403K111	CAP MLCC X7R 0.1UF/50V ±10%(K) 0603 TAPPING(SMD)	C1 C2 C3		3
124	N/A	J41070515T201	Ear-Phone JACK,5 PIN,DIP 90°LIME GREEN,Tekcon	CNA1		1
125	N/A	L012601301311	BEAD CHOKE Ferrite Chip Beads(generalcircuit) FMC2012 600Ω 300 mA 0805(2012) TAPING Chilisn SMD	FB1 FB2 FB3		3
126	N/A	Y64115HB04*1	CONNECTOR M 180°/2.0mm 1ROW 4P	CNA1		1
127	HW-00005776	XLMI704200003	BRACKET ASSY LM/F1704 BLACK C F179/LM1704/F199 communa			1
128	N/A	M154223012801	SCREW Φ3*12MM WASHER			3
129	N/A	M701900LM0050-A	Hinge SPCC LM/LM1704 REV:0			1
130	N/A	P711AJ26LM010	BRACKET(BASE)/ABS HB BLACK C LM/F199 L77.4*W43*H75.5mm			1
131	C-00005778	XLMI704280001	BASE ASSY LM/F1704			1
132	N/A	P610051010001	LM/199 rubber Φ17*T2mm black-c			4
133	N/A	P74AA926LM170	BASE ABS HB BLACK C LM/LM1702 FOR Atlantis REV:0			1
134	N/A	XLMI17VA380001	SHIELD ASSY LM/MR17V-AAA (SHIELD+Mylar )			1
135	N/A	M711200LM0160-A	SHIELD SPTELM/MR17V-AAAD REV:0	ZM		1
136	N/A	P369579010001	MYLAR L95*W79.5*T0.1mm WHITH ADHESIVE			1

# BOM LIST (Q7b-3) "Innolux panel"

ViewSonic Model Number: VS11147

Rev: 1b

Serial No. Prefix: Q4A

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
1	E-00005762	E231080200004	26AWG/UL 8Q2W SPEAKER+SPEAKERWIRE 4P/2P+2PIN L400/145MM			1
2	E-00008013	E34M02170J001	LCD MODULE MT170EN01 1280*1024[SX] 17" LVDS INNOLUX			1
3	DC-00005774	F000217043001	USER'S MANUAL LM/LM1704 ENGLISH L210*W148mm REV:0			1
4	DC-00005754	F103010LM0001	Blank Label LM/MONITOR L43*W10mmr			1
5	N/A	F103010LM0003	Blank Label LM/MONITOR L85*W24mmr			1
6	P-00005780	F20133F179003	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm			1
7	P-00005781	F20143F179003	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm			1
8	P-00006586	F300250000070	PLASTIC BAG PE L610*W510*T0.04mm			1
9	N/A	F300250000071	PLASTIC BAG PE L260*W180*T0.03mm			1
10	N/A	F300483202001	PEARL BGA EPE L320*W200*T1.0mm FOR LM1904			1
11	P-00005779	F400717170401	CARTON B LM/LM1704 L430*W125*H437mm for viewsonic REV:1			1
12	N/A	F401422LM0001	PARTITION SUPPORTBC LM/MONITOR L800*W50*H50*T5mm			0.0588
13	N/A	F401422LM0002	PARTITION SUPPORTBC LM/MONITOR L1800*W50*H50*T5mm			0.0588
14	N/A	F401918170401	LM/LM1704 L1040*W432*H60mm			0.0046
15	N/A	F401918170402	LM/LM1704 L1170*W865*H60mm	ZP		0.0148
16	N/A	F401918170403	LM/LM1704 L1040*W865*H60mm	ZP		0.0148
17	N/A	F50301F179001	PALLET SMOKE WOOD LM/F179 L1180*W870*H120mm			0.0074
18	N/A	F50301F179002	PALLET SMOKE WOOD LM/F179 L1050*W430*H120mm			0.0023
19	N/A	F50301F179003	PALLET SMOKE WOOD LM/F179 L1050*W870*H120mm			0.0074
20	N/A	F900181000001	PE LIMPID W500*T0.03mm 1500m			0.000156
21	N/A	F9008G2000002	PACK THREAD PP WHITE W14.5mm*T0.8mm 1300nr			0.000275
22	N/A	M104243004401	SCREW MACHINE STEEL +/B Φ3.0* L4mm NICKEL	ZS		11
23	N/A	M104254008401	SCREW MACHINE/STEEL +/TΦ4xL8mm NICKEL			4
24	N/A	M105244005401	SCREW MACHINE BINDING Φ4.0*L1.5mm NICKEL with toothed lock washers			1
25	N/A	M108253006401	SCREW MACHINE/ Φ3*L1.6mm NI NICKEL	ZS		1
26	N/A	M168243010401	SCREW +/B Φ3.0*L10mm NICKEL(R70GB-3010600)			2
27	N/A	M621700LM0480-E	Bracket SECC LM/LM1704(RGB CABEL) FOR ViewSonic REV:0	ZM		1
28	N/A	M622700LM0050	panel bracket-L F179 SECC T=0.8mm			1
29	N/A	M623700LM0050	panel bracket-R F179 SECC T=0.8mm	ZS		1
30	N/A	P36A3A2010001	MYLAR L136*W124*T0.188mm			1
31	N/A	P36AKAF010001	MYLAR L350 X W290 X T0.12MM			1
32	N/A	P391510700001	SPEAKER SPONGE L15*W10*T7.0mm			1
33	N/A	P395241A50002	SPEAKER SPONGE L52.5*W41*T15mm EVA 25° FOR LM1704			2
34	N/A	P441200B30001	RUBBER CUSHION Φ12*H23.5mm			1
35	N/A	P441508980001	RUBBER CUSHION /RUBBER L15*W8*T9.8mm BLACKL15*8*9.8 BLACK			2
36	N/A	P441510A70001	(EVA) L15mm*W10mm*H11mm WITH ADHESIVE			2
37	C-00005782	P70EAF26LM010-A	COVER(HINGE) ABS PA757 C LM/LM1704 (L143*W27.5*H25mm) REV:0			1
38	C-00005783	P727AF26LM021-C	BEZEL ABS PA757 BLACK C LM/LM1704 FOR ViewSonic REV:1			1
39	PL-00005770	P763A26LM070	FUNCTION-KEY F1704 ABS HB BLACK-C			1
40	N/A	P791P500LM030-A	LENS PMMA NATURAL LM/LM1704&1904 REV:0			1
41	N/A	V300800000001	GLUE 50g/BOTTLE (: -60℃~+200℃)			0.01
42	N/A	V5004AP150201	ADHESIVE TAPE L25000*W15*T0.25mm 25m/ROLL(YW0910300002)			0.012
43	N/A	V5005A5080101	L50000*W8*T0.1mm (YW0911200007)			0.006
44	N/A	V501275024801	L75m*W48*T0.045mm FOR VIWESONIC			0.006
45	N/A	V900505020003	AL FOIL L50*W30*T0.10mm			1
46	N/A	V900505030001	AL FOIL L100xW40xT0.07mm			1
47	N/A	V900505030007	AL FOIL L100xW30*T0.35mm(Y78400004G*1)			1
48	CB-00005758	W0026918A0142	AUDIO CABIE 26AWG UL2547 L=1800mm 6C BLACK			1
49	CB-00008050	W0330715AQ261	RGB CABLE 30AWG UL20276 L1500mm 15PIN TO 2*8PIN BLACK C			1
50	A-00005760	W40218A022631	(CON).POWER CORD/AC UL18AWG L1500mmBLACK.C.I-SHENG125V 10A....			1
51	N/A	W47A103019501	WIRE FFC CY050408001 P=1.0mm 30PIN L195mm HUNG FU			1
52	N/A	W47B100825001	WIRE FFC FFCC0605T2250EC P=1.0mm 8PIN L250mm			1
53	N/A	XL1700390014	POWER BOARD+INVERTER BOARD ASSY PI-SB03 +24V +5V (W-GROUND) LM/17"/19" LCD MONITOR FOR VIEWSONIC			1
54	N/A	BLM1700P60210	BARE PCB LM/17" & 19" LCD (FOR VIEWSONIC) POWER+INVERTER BOARD 1SIDE CEM-1 T1.6mm REV:1.0			1
55	N/A	XL1704040001	MAIN BOARD ASSY LM/F1704/F1904 ( 2 sides FR-4 T1.6mm REV:1.0)			1
56	N/A	A01F241615A21	IC EEPROM AT24C16 2500ns ATMEL SOIC-8 2K*8 (SMD)	U4		1
57	N/A	A03D111703A53	IC Linear voltage converter AP1117E18A SOT-223- 3Pin(SMD)	REG2		1
58	N/A	A03D111703U01	VOLTAGE REGULATOR LD1117-18-A SOT-223 3PIN 1.8V UTC (SMD)			1
59	N/A	A03D111703A54	IC LINEAR VOLTAGE REGULATOR AP1117E33A SOT-223 ANACHIP (SMD)	REG1		1
60	N/A	A03D111703G03	IC LINEAR IC VOLTAGE REGULATOR GL1117A-3.3 (INPUT 4.8-12V OUTPUT 3.3V) SOT-223 GTM LeadFree (SMD)			1
61	N/A	A03K206819A41	LINEAR IC AUDIO AMPLIFIER APA2068KA1 SOP-16 ANPEC LEAD FREE (SMD)	UA1		1
62	N/A	A07TV51202M001	IC MCU MTV5120GMG 64K MYSON LQFP-48P Lead Free (SMD)	U3		1
63	N/A	A08D2023R2001	IC ASIC/SCALER RTD2023LPLCC-48P REALTEK Lead Free(SMD)	U1		1
64	N/A	BLM17A4M10300	PCB printing LM/F1704/F1904 FOR mainboard 2sides FR-4 T1.6mm REV:1.0			1
65	N/A	C02210003J111	CAP MLCC NPO 10pF 50V ±5%0603 TAPPING (SMD)	C15 C18 C22 C46 C47		5
66	N/A	C02212003J111	CAP MLCC /NPO 12PF 50V±5%(J) 0603 TAPPING (SMD)	C26		1
67	N/A	C02222003J111	CAP MLCC /NPO 22PF 50V±5%(J) 0603 TAPPING (SMD)	C25		1
68	N/A	C02310501K111	CAP MLCC X5R 1uF 16V ±10%(K) 0603 TAPING (SMD)	CA5 CA6 CA8		3
69	N/A	C02410403K111	CAP MLCC X7R 0.1UF/50V±10%(K) 0603 TAPPING(SMD)	C2 C3 C4 C5 C6 C8 C9 C11 C12 C13 C14 C15 C16 C18 C19 C21 C22 C23 C28 C30 C31 C40 C42 C43 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 CA1 CA3 CA4		38
70	N/A	C02447302K111	CAP MLCC/ X7R 0.047uF /25V±10%(K) 0603 TAPPING(SMD)	C24 C32 C35 C36 C37 C39		6
71	N/A	C02847401M111	CAP MLCC Y5V 0.47uF 16V±20%(M) 0603 TAPPING (SMD)	C33		1

Item	ViewSonic P/N	Ref. P/N	Description	Location	Universal number#	Q'ty
72	N/A	C4021006M2431	CAP EC(S) -40~105°C 10uF 25V ±20% (M) Φ5×H7mm P=2.5mm (DIP)	C29 C41 C44		3
73	N/A	C4021014M2532	CAP EC -40~105°C 100uF/16V ±20%(M) Φ6.3×H P=2.5mm (DIP)	CA2 EC2 EC3 KS		3
74	N/A	C4022204M2322	CAP EC -40~105°C 22UF/16V ±20%(M) § 5*H5MM P=2.0MM(DIP)	C1 C10 C17 C20 KS		4
75	N/A	C4022214M3232	CAP EC -40~105°C 220UF/16V ±20%(M) Φ6.3*H7mm P=2.5mm (DIP)	C45 EC1		2
76	N/A	C4022296M2122	CAP EC -40°C~105°C 2.2uF/25V ±20%(M) ψ4*H5mm P=2.0mm (DIP)	CA7		1
77	N/A	C4024704M2242	CAP EC -40°C ~+105°C 47uF/16V Φ5*11mm M DIP	C7		1
78	N/A	D00BAV9905G01	DIODE BAV99 SOT-23 GTM (SMD)	D1 D2 D3		3
79	N/A	D00L414803Y11	DIODE LL4148 SOD-123 YING (SMD)	D8 D9 D10 D11		4
80	N/A	D01ZT52C03K01	ZENER BZT52C SOD-123KINGWELL 5.6V (SMD)	D4 D5 D6 D7		4
81	N/A	J4509100085C1	FFC CONNECTOR P=1mm 8PIN 90° CF16061D0T0 HANQUAN (DIP)	JP1		1
82	N/A	J4509100306H1	FFC CONN .30 PIN,1.0.DIP 180° 1 ROW,Cvilux 16301V0T or compatible	CN2		1
83	N/A	J4527200164A1	WAFER P=2.0mm 16PIN(2*8PIN) 180° GRAY (DIP)	CN3		1
84	N/A	L012121201113	BEAD CHOKE Ferrite(generalcircuit) DDY160808U121MB 120Ω 200mA 0603 (SMD)	FBA1 FBA3 FBA4 FBA5 FBA6 FBA7 FBA8 FBA9 L5		9
85	N/A	L012700201111	BEAD CHOKE Ferrite(generalcircuit) DDY160808U121MB 70Ω 200mA 0603(1608) TAPING FORD GLORY LEAD FREE (SMD)	L2 L3 L4		3
86	N/A	L013121302A11	CHIP BEAD Ferrite Chip Beads (high current) WB201209B601QLT02 120Ω 3000mA 1206 Walsin (SMD)	FB1 FB2 FB3 FB4 FBA2		5
87	N/A	Q441240047151	CRYSTAL QUARTZ/ 24MHZ30PPM 20PF 49US CRE (DIP)	Y1		1
88	N/A	R070000J20111	05: RESISTOR.RES CHIP 0Ω ±5%(J) 1/8W 0603 TAPPING (SMD).....	L1 R15 R19 R24		4
89	N/A	R070220J30111	05: RESISTOR.RES CHIP 22Ω ±5%(J) 1/16W 0603 TAPPING (SMD).....	R53 R55		2
90	N/A	R070330J30111	RES CHIP 33Ω ±5%(J) 1/16W 0603 TAPPING(SMD)	R56		1
91	N/A	R070470J10111	RESISTOR.RES CHIP 47Ω ±5%(J) 1/10W.0603 TAPPING (SMD)	R16 R22 R25 K		3
92	N/A	R070750F30111	05: RESISTOR.CHIP RES 75Ω ±1%(F).1/16W 0603 TAPPING (SMD)(Y180217509F0)	R17 R21 R26 K		3
93	N/A	R071000J20111	RESISTOR.RES CHIP 100Ω ±5%(J).1/8W 0603TAPPING(SMD).....	R11 R12 R18 R20 R23 R27 R58 R59 R62 R63 R64 R65 R66 R67 R68		15
94	N/A	R071001J20111	05: RESISTOR.RES CHIP 1KΩ ±5%(J) 1/8W.0603 TAPPING (SMD).....	R2 R4 R5 R7 R61 R70		6
95	N/A	R071002J20111	05: RESISTOR.RES CHIP 10KΩ ±5%(J) 1/8W.0603 TAPPING(SMD).....	R50 R51 R52 R54		6
96	N/A	R071003J10111	RES CHIP 100KΩ ±5%(J) 1/1 0603 TAPPING (SMD)	R1		1
97	N/A	R071004J30111	RES CHIP 1MΩ ±5%(J) 1/16W 0603 TAPPING (SMD)	RG1		1
98	N/A	R071502F30111	RES CHIP 15KΩ ±1%(F) 1/16 0603 TAPPING (SMD)	R8 RA5		2
99	N/A	R072001J30111	RES CHIP 2KΩ ±5%(J) 1/16W 0603 TAPPING (SMD)(Y180222001J0)	R13 R14		2
100	N/A	R072200J20111	05: RESISTOR.RES CHIP 220Ω ±5%(J) 1/8W.0603 TAPPING(SMD).....	R60 R69		2
101	N/A	R072201J10111	RES CHIP 2.2KΩ ±5%(J)1/10W 0603 TAPPING (SMD)	R37 R38		2
102	N/A	R073302J30111	RES CHIP 33KΩ ±5%(J) 1/16 TAPPING(SMD)(Y180213302J0)	R10		1
103	N/A	R074701J20111	RESISTOR.RES CHIP 4.7KΩ ±5%(J) 1/8W.0603 TAPPING(SMD).....	R3 R6 R28 R29 R30 R36		6
104	N/A	R074702J20111	05: RESISTOR.RES CHIP 47KΩ ±5%(J) 1/8W.0603 TAPPING (SMD).....	RA3 RA4		2
105	N/A	R076801J10111	RES CHIP 6.8KΩ ±5%(J)1/10W 0603 TAPING (SMD)	R57		1
106	N/A	R141002J20111	RES ARRAY 10KΩ ±5%(J) 1/16W 8P4R 3216 TAPPING (SMD)(Y270181002J0)	RP1 RP2 RP3 RP4		4
107	N/A	T00T390402G01	TR GMBT3904 SOT-23 GTM (SMD)	Q2 Q3 Q4		3
108	N/A	T00T390602G01	Triode GMBT3906 SOT-23 GTM (SMD)	Q7 Q8 Q9 Q10		4
109	N/A	T01A340102A21	XSTR AO3401/ST3401, SOT- 23:3 , Alpha & Omega/ST	Q1		1
110	N/A	W432264C21301	WIRE HARNESS UL1007 26AWG 4PIN P=2mm 180° L130mm			1
111	N/A	Y64115HB04*1	CONNECTOR M 180°C/2.0mm 1ROW 4P	CNA1		1
112	N/A	Y64115HB06*1	CONNECTOR 180°C 2mm 6PIN	CN1		1
113	B-00008141	XL1M1704050002	KEY BOARD ASSY LM/LM1704 For Realtek			1
114	N/A	BLM1704B10212	BARE PCB LM/MR1704 BUTTON BOARD 1SIDE FR-1 T1.6mm REV:1.2			1
115	N/A	D462213405201	LED Φ4*H5.5mm P=1.5mm ORA/GREEN BULK 3PIN fold 90°	LED2		1
116	N/A	J4509100085C1	FFC CONNECTOR P=1mm 8PIN 90° CF16061D0T0 HANQUAN (DIP)	CN1		1
117	N/A	P764P295LM010	SWITCH PA66 BLACK LCDMONITOR SERIES REV:0	SW1 SW2 SW3 SW4 SW5		5
118	PL-00005775	XL1M1704110002	HOUSING ASSY LM/F1704 black c RGB+AUDIO			1
119	N/A	M621700LM0190	REAR BRACKET SECC T=1.0mm			2
120	N/A	M628700LM0010	SUPPORTER SECC LM/F1704 REV:0			1
121	N/A	P728AJ26LM010	housing F179 ABS HB BLACK-C			1
122	N/A	V300800000001	GLUE 50g/BOTTLE (: -60°C~+200°C)			0.01
123	N/A	XL1M1704150001	AUDIO BOARD ASSY LM/F1704 (PCB 1SIDE FR-1 T1.6mm REV:1.0)			1
124	N/A	BLM1704A10110	BARE PCB LM/F1704 AUDIO BOARD 1SIDE FR-1 T1.6mm REV:1.0			1
125	N/A	C02410403K111	CAP MLCC X7R 0.1UF/50V ±10%(K) 0603 TAPPING(SMD)	C1 C2 C3		3
126	N/A	J41070515T201	Ear-Phone JACK.5 PIN,DIP 90°.LIME GREEN,Tekcon	CNA1		1
127	N/A	L012601301311	BEAD CHOKE Ferrite Chip Beads(generalcircuit) FMC2012 600Ω 300 mA 0805(2012) TAPING Chilisun SME	FB1 FB2 FB3		3
128	N/A	Y64115HB04*1	CONNECTOR M 180°/2.0mm 1ROW 4P	CNA1		1
129	HW-00005776	XL1M1704200003	BRACKET ASSY LM/F1704 BLACK C F179/LM1704/F199 communa			1
130	N/A	M154223012801	SCREW Φ3*12MM WASHER			3
131	N/A	M701900LM0050-A	Hinge SPCC LM/LM1704 REV:0			1
132	N/A	P711AJ26LM010	BRACKET(BASE)/ABS HB BLACK C LM/F199 L77.4*W43*H75.5mm			1
133	C-00005778	XL1M1704280001	BASE ASSY LM/F1704			1
134	N/A	P610051010001	LM/199 rubber Φ17*T2mm black-c			4
135	N/A	P74AA926LM170	BASE ABS HB BLACK C LM/LM1702 FOR Atlantis REV:C			1
136	N/A	XL1M17VA380001	SHIELD ASSY LM/MR17V-AAA (SHIELD+Mylar )			1
137	N/A	M711200LM0160-A	SHIELD SPTELM/MR17V-AAAD REV:0	ZM		1
138	N/A	P369579010001	MYLAR L95*W79.5*T0.1mm WHITH ADHESIVE			1

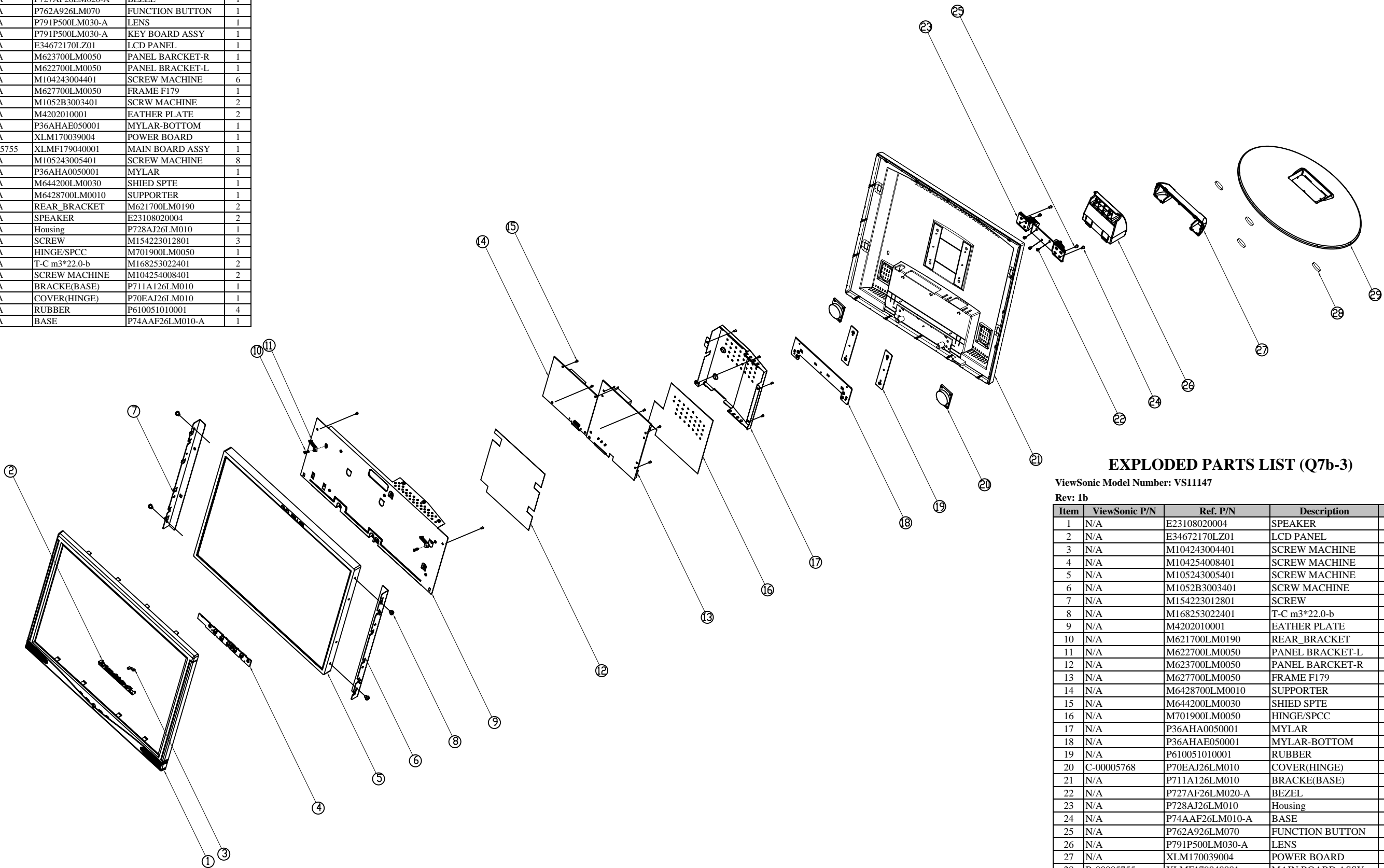
8. Exploded Diagram and Exploded Parts List

EXPLODED PARTS LIST (Q7b-3)

ViewSonic Model Number: VS11147

Rev: 1a

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	N/A	P727AF26LM020-A	BEZEL	1
2	N/A	P762A926LM070	FUNCTION BUTTON	1
3	N/A	P791P500LM030-A	LENS	1
4	N/A	P791P500LM030-A	KEY BOARD ASSY	1
5	N/A	E34672170LZ01	LCD PANEL	1
6	N/A	M623700LM0050	PANEL BARCKET-R	1
7	N/A	M622700LM0050	PANEL BRACKET-L	1
8	N/A	M104243004401	SCREW MACHINE	6
9	N/A	M627700LM0050	FRAME F179	1
10	N/A	M1052B3003401	SCRW MACHINE	2
11	N/A	M4202010001	EATHER PLATE	2
12	N/A	P36AHAE050001	MYLAR-BOTTOM	1
13	N/A	XLM170039004	POWER BOARD	1
14	B-00005755	XLMF179040001	MAIN BOARD ASSY	1
15	N/A	M105243005401	SCREW MACHINE	8
16	N/A	P36AHA0050001	MYLAR	1
17	N/A	M644200LM0030	SHIED SPTE	1
18	N/A	M6428700LM0010	SUPPORTER	1
19	N/A	REAR_BRACKET	M621700LM0190	2
20	N/A	SPEAKER	E23108020004	2
21	N/A	Housing	P728AJ26LM010	1
22	N/A	SCREW	M154223012801	3
23	N/A	HINGE/SPCC	M701900LM0050	1
24	N/A	T-C m3*22.0-b	M168253022401	2
25	N/A	SCREW MACHINE	M104254008401	2
26	N/A	BRACKE(BASE)	P711A126LM010	1
27	N/A	COVER(HINGE)	P70EAJ26LM010	1
28	N/A	RUBBER	P610051010001	4
29	N/A	BASE	P74AAF26LM010-A	1

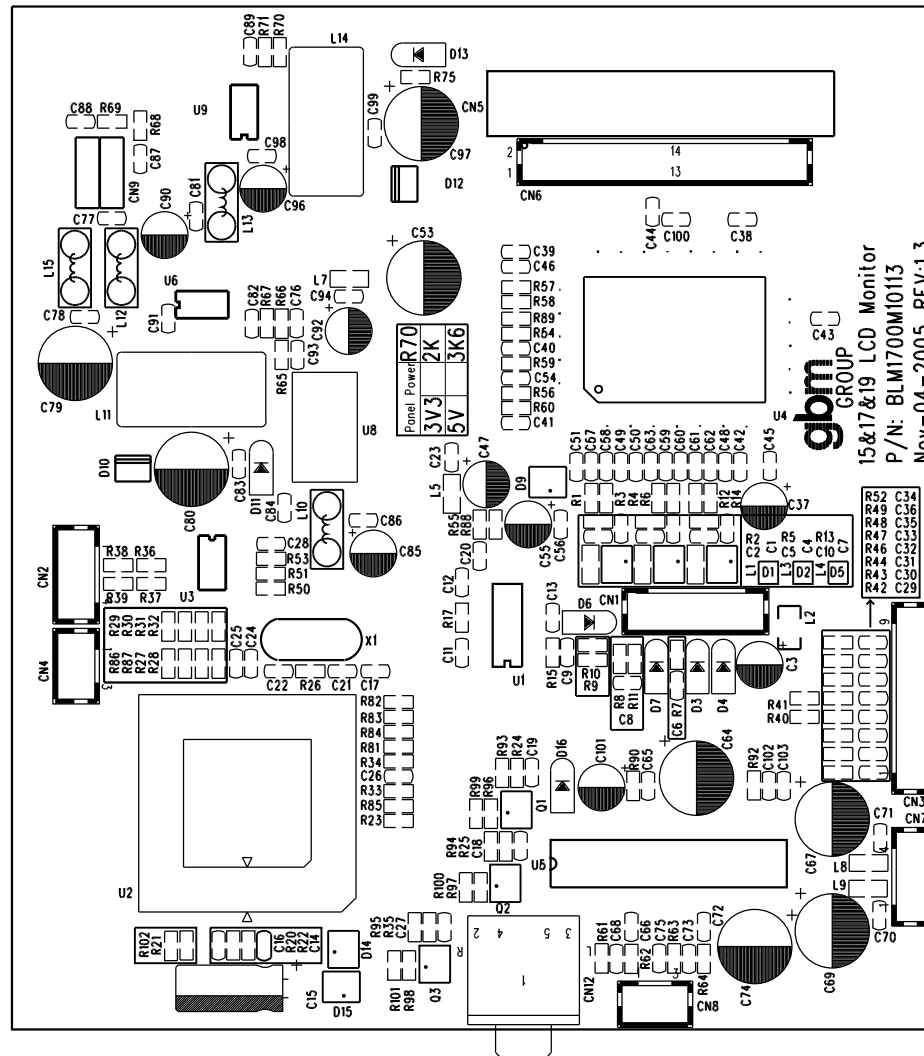


EXPLODED PARTS LIST (Q7b-3)

ViewSonic Model Number: VS11147

Rev: 1b

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	N/A	E23108020004	SPEAKER	2
2	N/A	E34672170LZ01	LCD PANEL	1
3	N/A	M104243004401	SCREW MACHINE	6
4	N/A	M104254008401	SCREW MACHINE	2
5	N/A	M105243005401	SCREW MACHINE	8
6	N/A	M1052B3003401	SCRW MACHINE	2
7	N/A	M154223012801	SCREW	3
8	N/A	M168253022401	T-C m3*22.0-b	2
9	N/A	M4202010001	EATHER PLATE	2
10	N/A	M621700LM0190	REAR_BRACKET	2
11	N/A	M622700LM0050	PANEL BRACKET-L	1
12	N/A	M623700LM0050	PANEL BARCKET-R	1
13	N/A	M627700LM0050	FRAME F179	1
14	N/A	M6428700LM0010	SUPPORTER	1
15	N/A	M644200LM0030	SHIED SPTE	1
16	N/A	M701900LM0050	HINGE/SPCC	1
17	N/A	P36AHA0050001	MYLAR	1
18	N/A	P36AHAE050001	MYLAR-BOTTOM	1
19	N/A	P610051010001	RUBBER	4
20	C-00005768	P70EAJ26LM010	COVER(HINGE)	1
21	N/A	P711A126LM010	BRACKE(BASE)	1
22	N/A	P727AF26LM020-A	BEZEL	1
23	N/A	P728AJ26LM010	Housing	1
24	N/A	P74AAF26LM010-A	BASE	1
25	N/A	P762A926LM070	FUNCTION BUTTON	1
26	N/A	P791P500LM030-A	LENS	1
27	N/A	XLM170039004	POWER BOARD	1
28	B-00005755	XLMF179040001	MAIN BOARD ASSY	1



gbm  
GROUP  
15"17"19" LCD Monitor  
P/N: BLM1700M10113  
Nov-04-2005 REV:1.3

GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER :	SILKSCREEN TOP			DATE	Nov-04-2005 REV 1.3
				FILE NAME	NESO_LCD_MB_REV_1.3

**ViewSonic Corporation**

Model	
Title	<b>SILKSCREEN TOP</b>
Date	Rev:

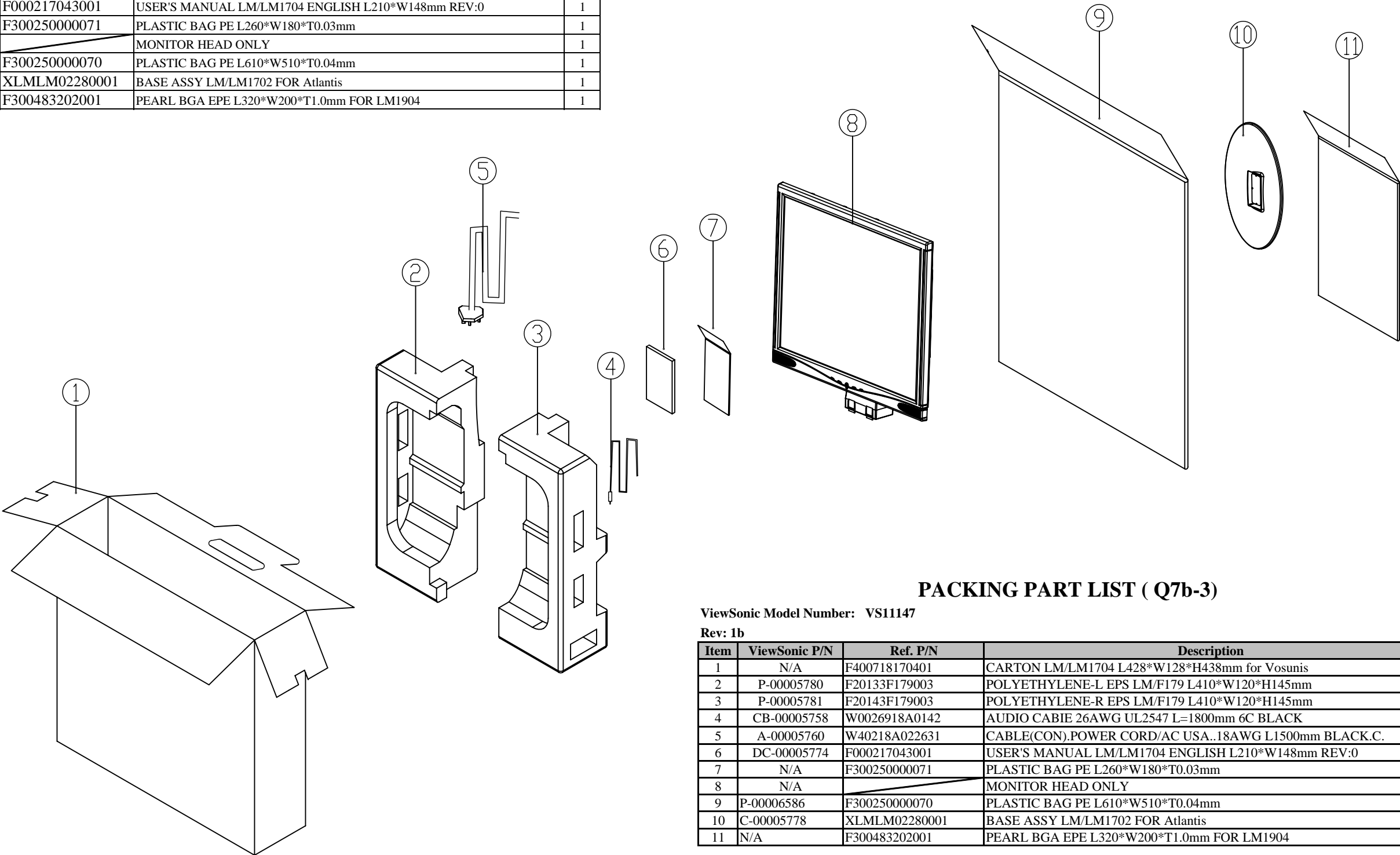


PACKING PART LIST ( Q7b-3 )

ViewSonic Model Number: VS11147

Rev: 1a

Item	ViewSonic P/N	Ref. P/N	Location	Q'ty
1	P-00005779	F400718170401	CARTON LM/LM1704 L428*W128*H438mm for Vosunis	1
2	P-00005780	F20133F179003	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm	1
3	P-00005781	F20143F179003	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm	1
4	CB-00005758	W0026918A0142	AUDIO CABIE 26AWG UL2547 L=1800mm 6C BLACK	1
5	A-00005760	W40218A022631	CABLE(CON).POWER CORD/AC USA..18AWG L1500mm BLACK.C.	1
6	DC-00005774	F000217043001	USER'S MANUAL LM/LM1704 ENGLISH L210*W148mm REV:0	1
7	N/A	F300250000071	PLASTIC BAG PE L260*W180*T0.03mm	1
8			MONITOR HEAD ONLY	1
9	N/A	F300250000070	PLASTIC BAG PE L610*W510*T0.04mm	1
10	C-00005778	XLMLM02280001	BASE ASSY LM/LM1702 FOR Atlantis	1
11	N/A	F300483202001	PEARL BGA EPE L320*W200*T1.0mm FOR LM1904	1



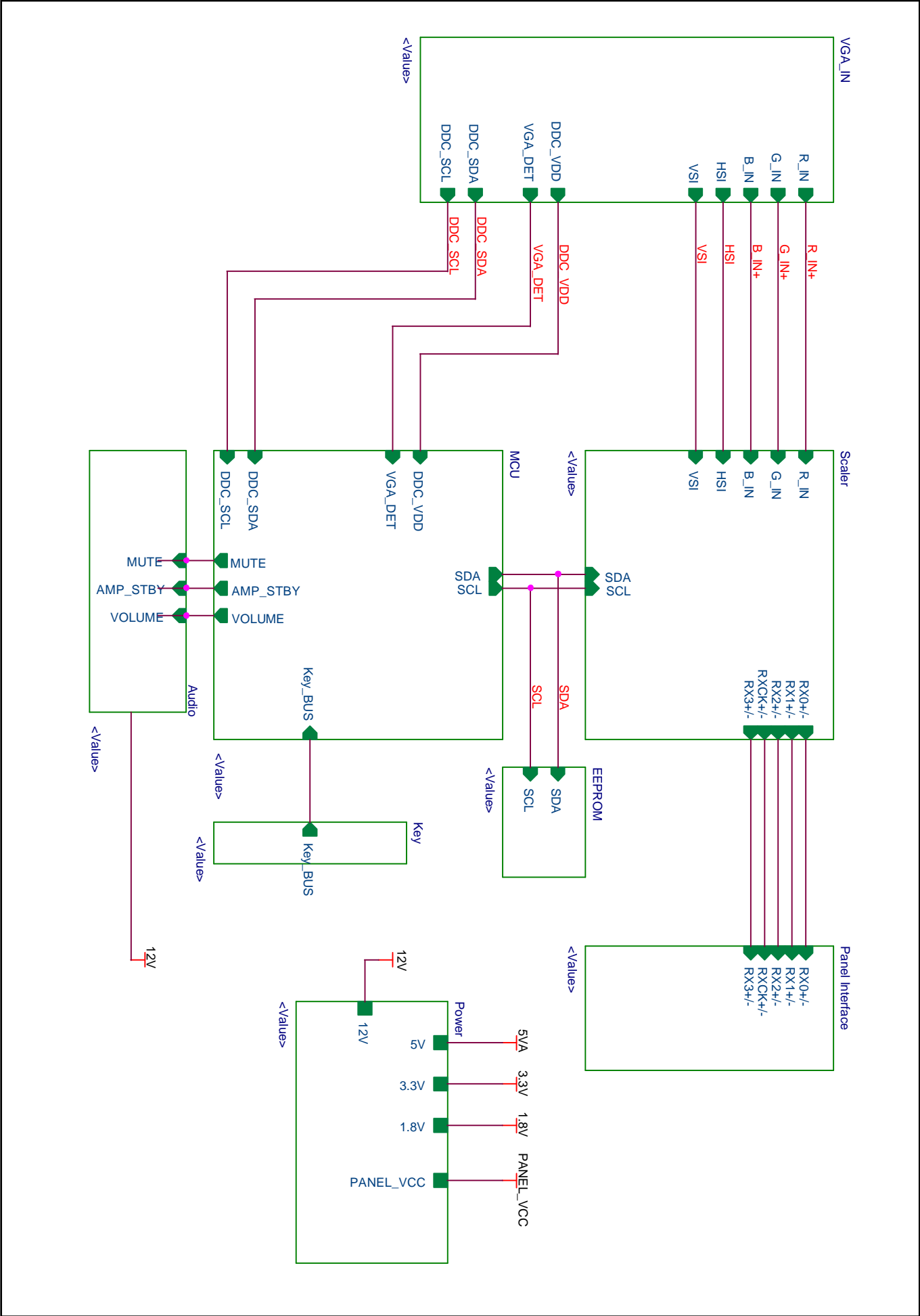
PACKING PART LIST ( Q7b-3 )

ViewSonic Model Number: VS11147

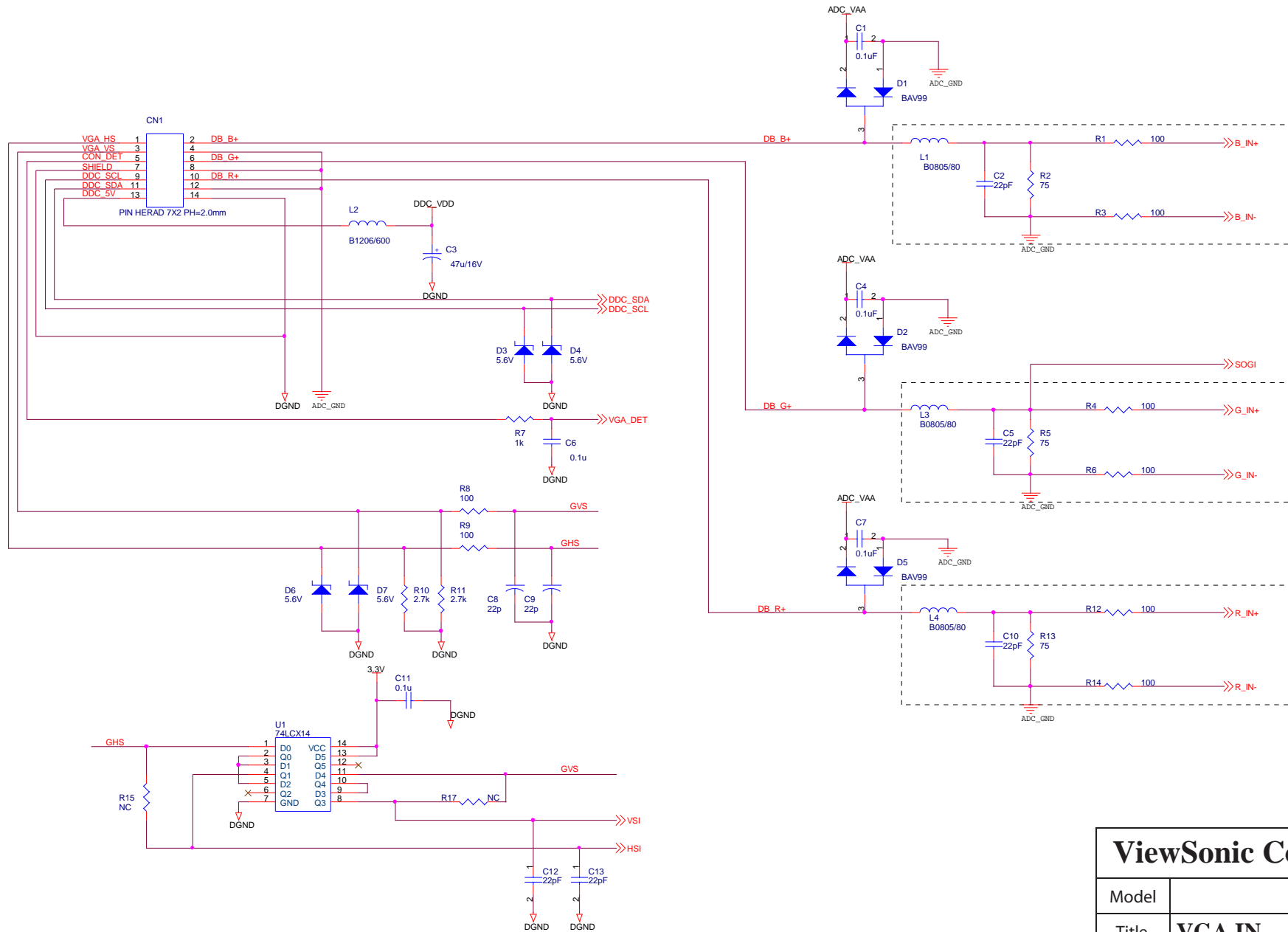
Rev: 1b

Item	ViewSonic P/N	Ref. P/N	Description	Q'ty
1	N/A	F400718170401	CARTON LM/LM1704 L428*W128*H438mm for Vosunis	1
2	P-00005780	F20133F179003	POLYETHYLENE-L EPS LM/F179 L410*W120*H145mm	1
3	P-00005781	F20143F179003	POLYETHYLENE-R EPS LM/F179 L410*W120*H145mm	1
4	CB-00005758	W0026918A0142	AUDIO CABIE 26AWG UL2547 L=1800mm 6C BLACK	1
5	A-00005760	W40218A022631	CABLE(CON).POWER CORD/AC USA..18AWG L1500mm BLACK.C.	1
6	DC-00005774	F000217043001	USER'S MANUAL LM/LM1704 ENGLISH L210*W148mm REV:0	1
7	N/A	F300250000071	PLASTIC BAG PE L260*W180*T0.03mm	1
8	N/A		MONITOR HEAD ONLY	1
9	P-00006586	F300250000070	PLASTIC BAG PE L610*W510*T0.04mm	1
10	C-00005778	XLMLM02280001	BASE ASSY LM/LM1702 FOR Atlantis	1
11	N/A	F300483202001	PEARL BGA EPE L320*W200*T1.0mm FOR LM1904	1

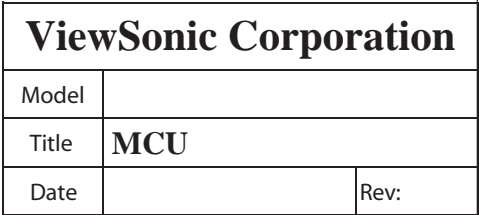
9. Block Diagram

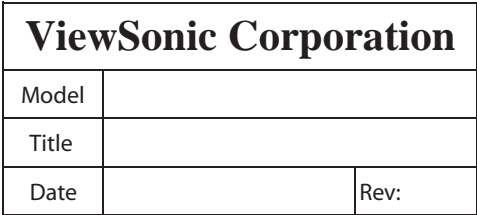


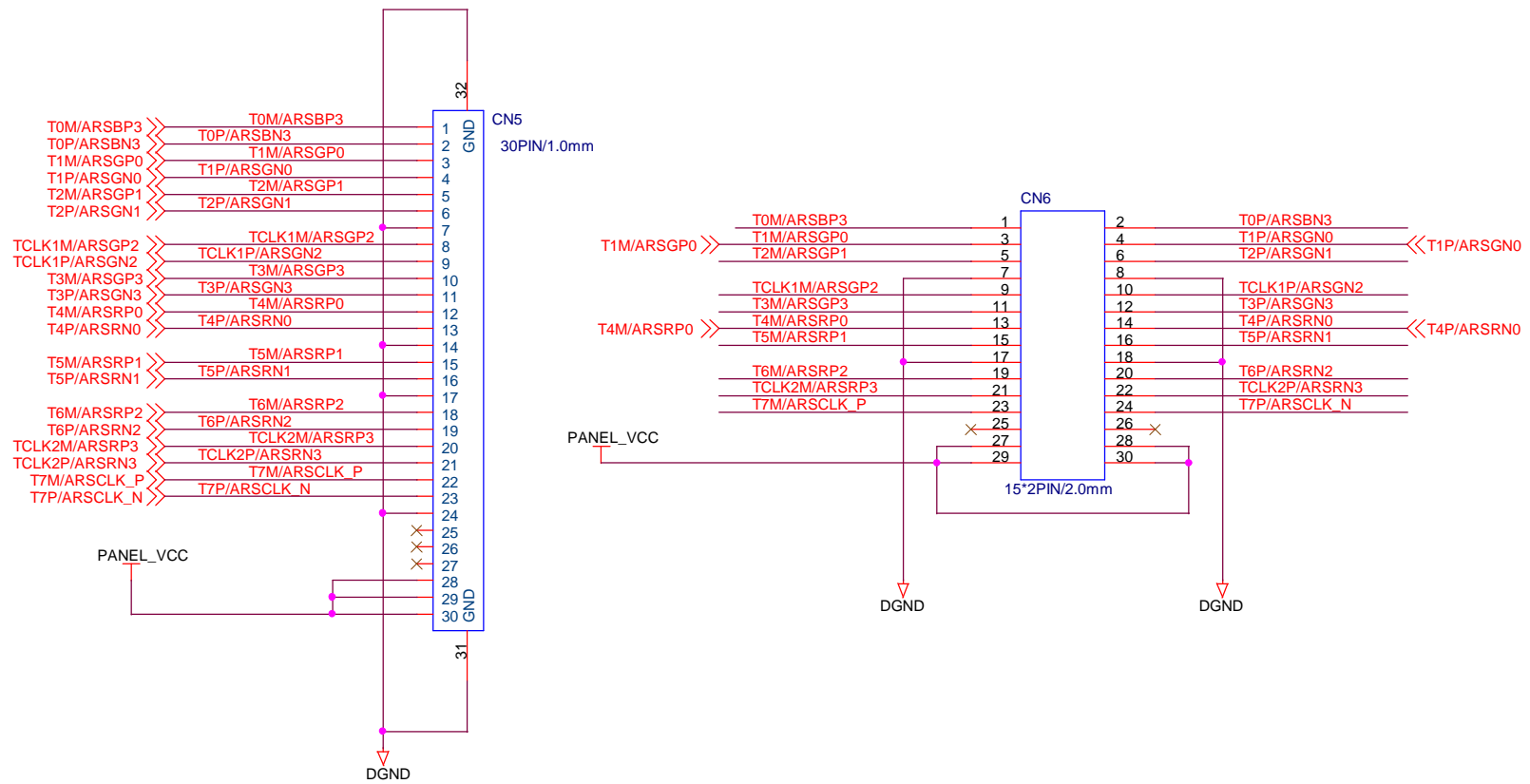
## 10. Schematic Diagrams



<b>ViewSonic Corporation</b>		
Model		
Title	<b>VGA IN</b>	
Date		Rev:







**ViewSonic Corporation**

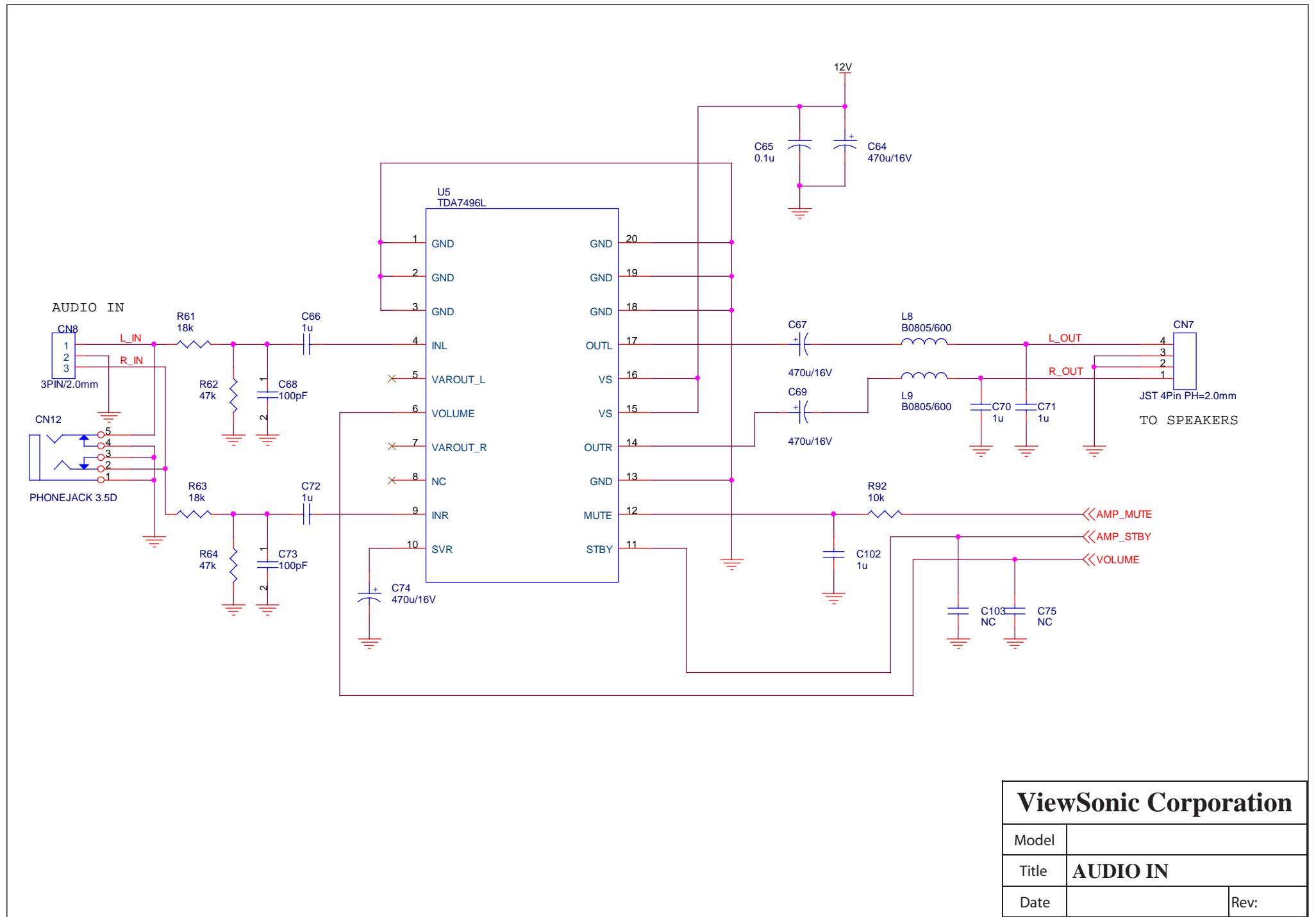
Model

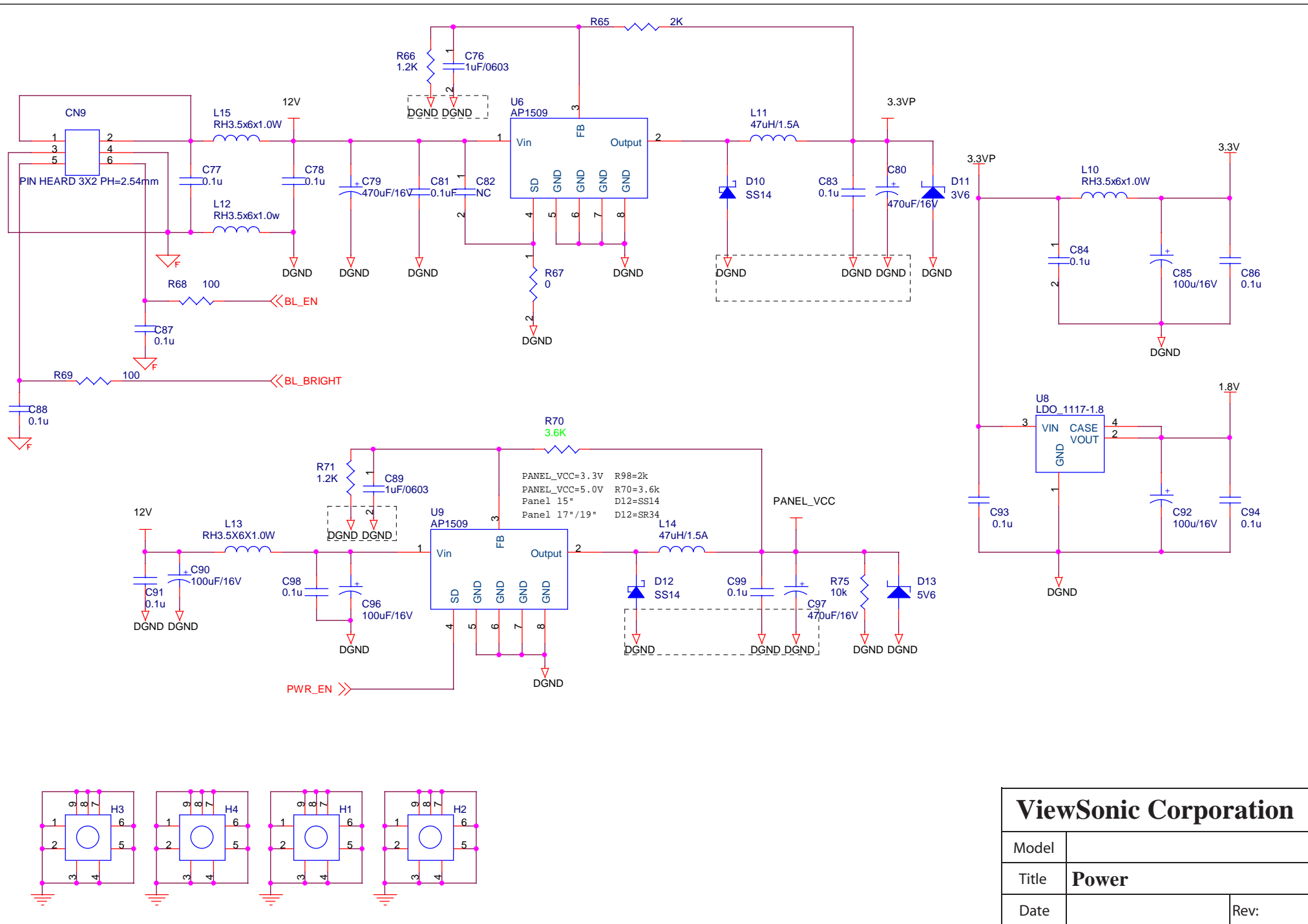
Title

Date

**PANEL CONNECTOR**

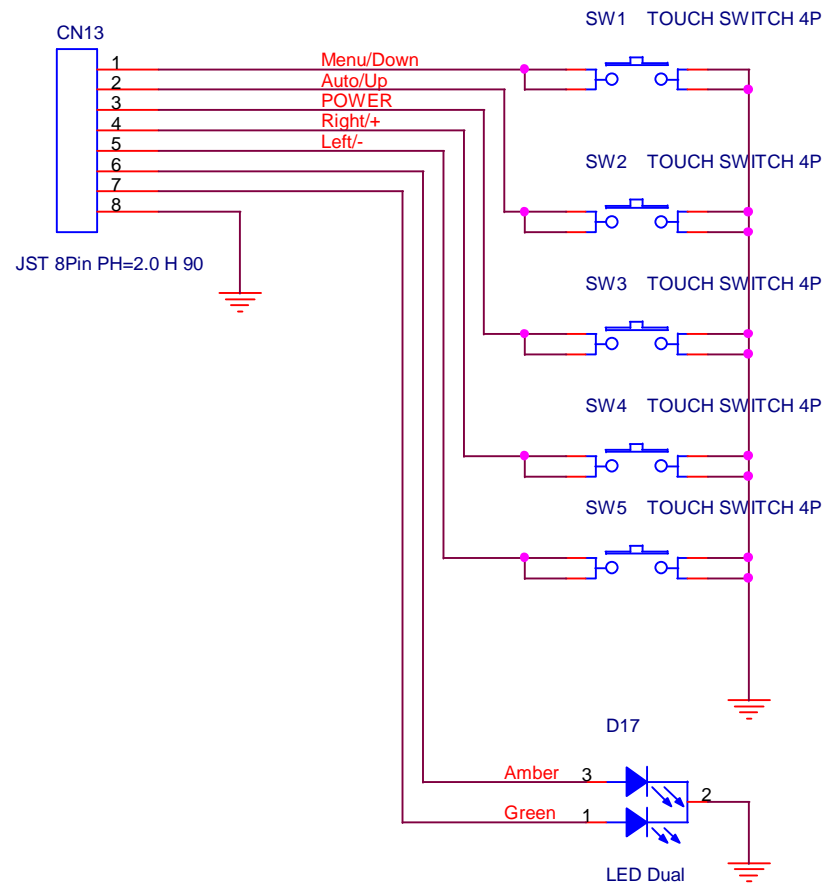
Rev:





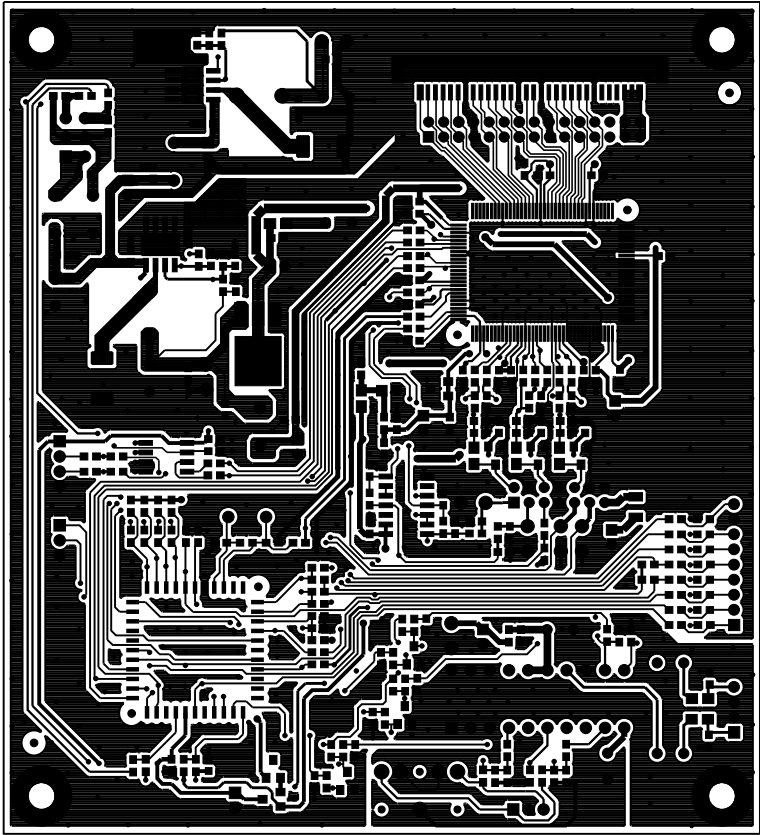
ViewSonic Corporation		
Model		
Title	Power	
Date		Rev:





ViewSonic Corporation		
Model		
Title	K/B	
Date		Rev:

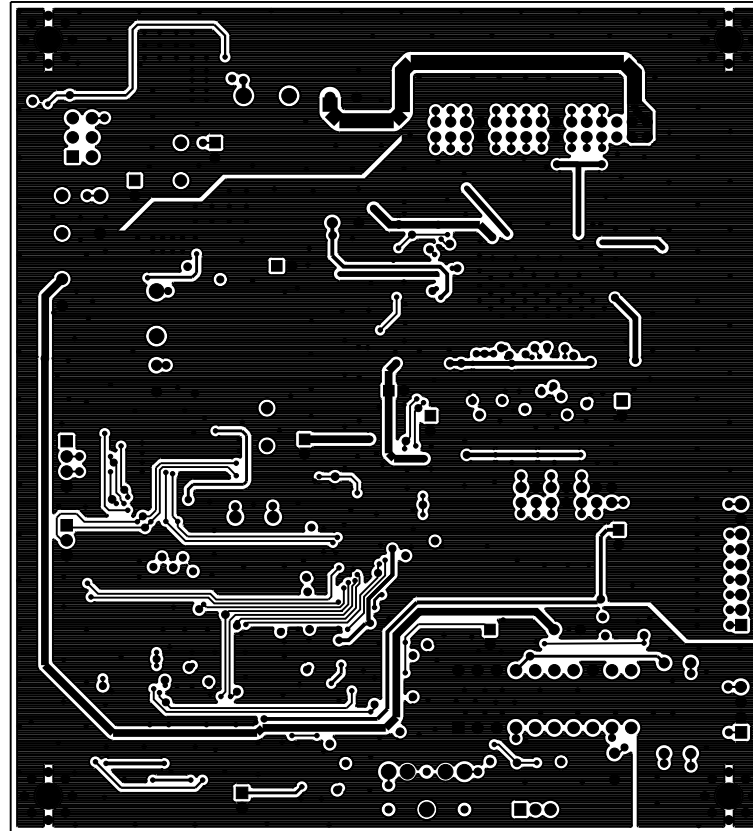
11. PCB Layout Diagrams



GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER : COMPONENT SIDE				DATE	Nov-04-2005
				REV	1.3
				FILE NAME	NESO_LCD_MB_REV_1.3

ViewSonic Corporation		
Model		
Title	COMPONENT SIDE	
Date		Rev:



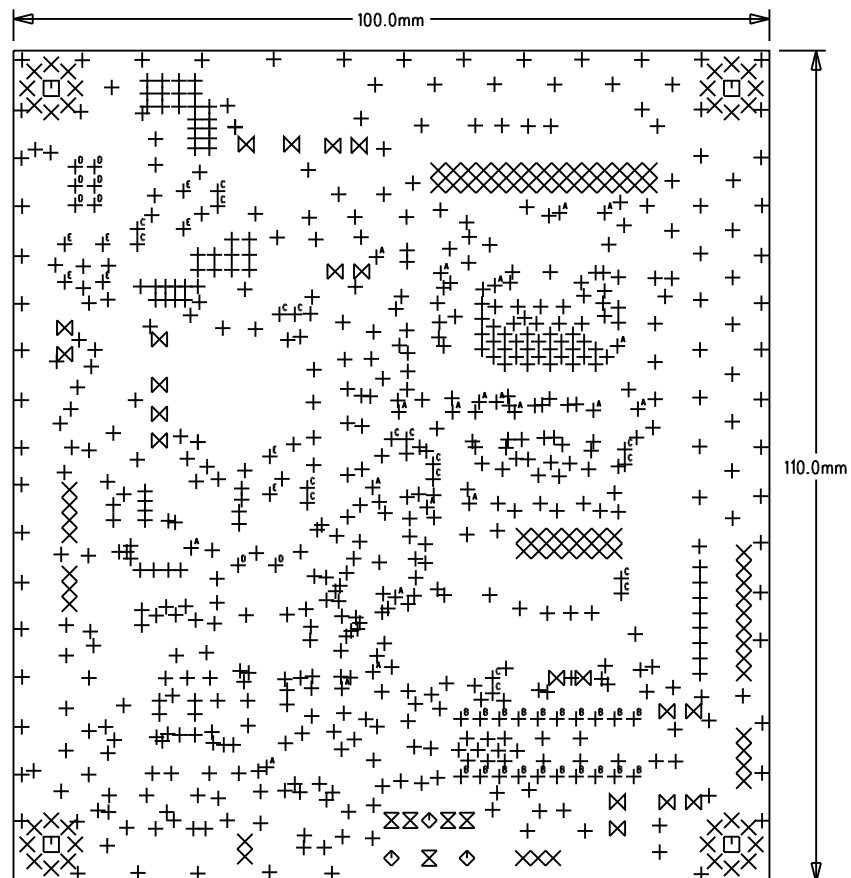
GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER : Copper Bottom				DATE	Nov-04-2005
				REV	1.3
				FILE NAME	NES0_LCD_MB_REV_1.3

**ViewSonic Corporation**

Model			
Title	<b>COPPER BOTTOM</b>		
Date		Rev:	

SIZE	QTY	SYM	PLTD	TOL
12	595	+	YES	+/-0.06MM
20	21	+ <sup>A</sup>	YES	+/-0.06MM
28	18	+ <sup>C</sup>	YES	+/-0.06MM
31.5	101	×	YES	+/-0.06MM
35	20	+ <sup>B</sup>	YES	+/-0.06MM
35.43	20	⊠	YES	+/-0.06MM
37	8	+ <sup>D</sup>	YES	+/-0.06MM
39.37	8	+ <sup>E</sup>	YES	+/-0.06MM
47.24	5	⊠	YES	+/-0.06MM
62.99	3	◇	NO	+/-0.06MM
137.8	4	□	NO	+/-0.06MM

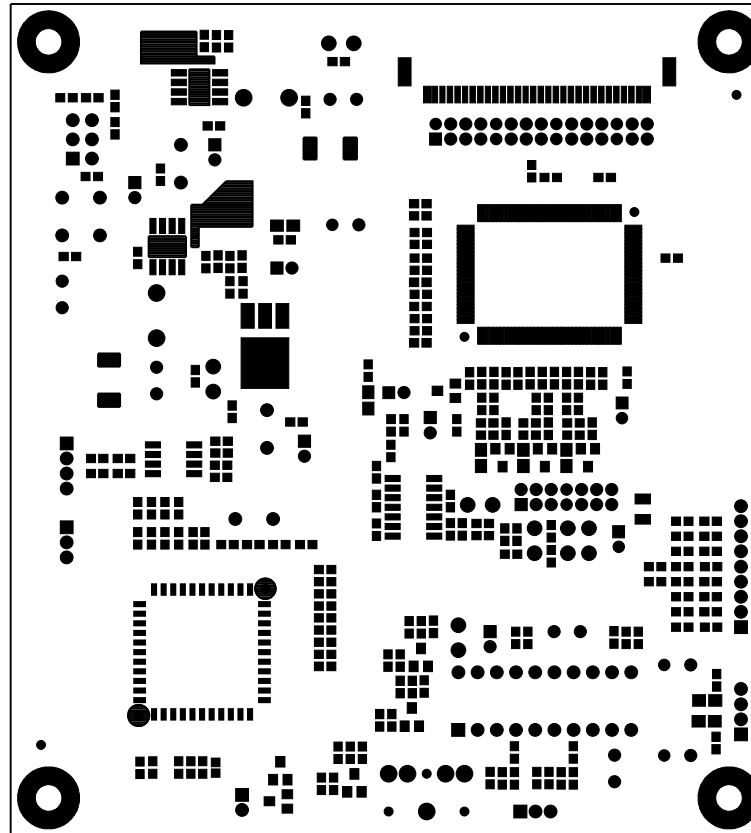


GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER :	DRILL DRAWING			DATE	Nov-04-2005
				REV	1.3
			FILE NAME	NESO_LCD_MB_REV_1.3	

**ViewSonic Corporation**

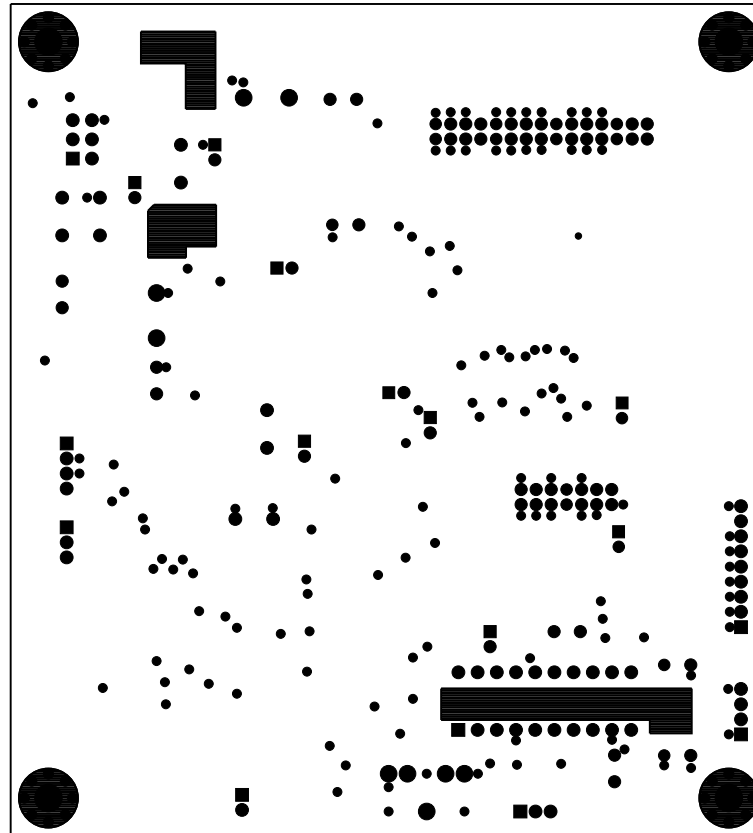
Model		
Title	<b>DRILL DREAWING</b>	
Date		Rev:



GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER : SOLDER MASK TOP				DATE	Nov-04-2005
				REV	1.3
				FILE NAME	NESO_LCD_MB_REV_1.3

<b>ViewSonic Corporation</b>		
Model		
Title	<b>SOLDER MASK TOP</b>	
Date		Rev:

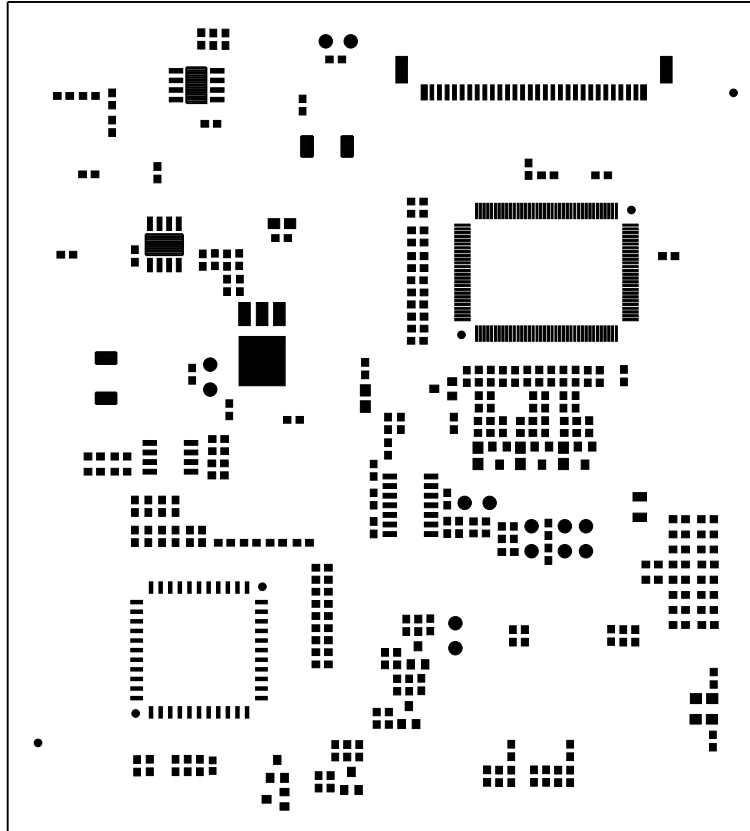


GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER : SOLDER MASK BOTTOM	DATE		Nov-04-2005	REV	1.3
	FILE NAME		NESO_LCD_MB_REV_1.3		

## ViewSonic Corporation

Model			
Title	<b>SOLDER MASK Bottom</b>		
Date		Rev:	



GBM Periphery (Technology)

MODEL NAME	15"17"19" Monitor	TYPE	Main BOARD	PCB SIZE	100*110mm
LAYER : PASTE MASK TOP				DATE	Nov-04-2005
				REV	1.3
				FILE NAME	NESO_LCD_MB_REV_1.3

## ViewSonic Corporation

Model	
Title	<b>PASTE MASK TOP</b>
Date	Rev:

## ***\* Reader's Response\****

Dear Readers:

Thank you in advance for your feedback on our Service Manual, which allows continuous improvement of our products. We would appreciate your completion of the Assessment Matrix below, for return to ViewSonic Corporation.

### **Assessment**

**A.** What do you think about the content of this Service Manual?

<i>Unit</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
<b>1. Precautions and Safety Notices</b>				
<b>2. Specification</b>				
<b>3. Front Panel Function Control Description</b>				
<b>4. Circuit Description</b>				
<b>5. Adjustment Procedure</b>				
<b>6. Troubleshooting Flow Chart</b>				
<b>7. Recommended Spare Parts List</b>				
<b>8. Exploded Diagram and Exploded Parts List</b>				
<b>9. Block Diagrams</b>				
<b>10. Schematic Diagrams</b>				
<b>11. PCB Layout Diagrams</b>				

**B.** Are you satisfied with this Service Manual?

<i>Item</i>	<i>Excellent</i>	<i>Good</i>	<i>Fair</i>	<i>Bad</i>
<b>1. Service Manual Content</b>				
<b>2. Service Manual Layout</b>				
<b>3. The form and listing</b>				

**C.** Do you have any other opinions or suggestions regarding this service manual?

### **Reader's basic data:**

<b>Name:</b>		<b>Title:</b>	
<b>Company:</b>			
<b>Add:</b>			
<b>Tel:</b>		<b>Fax:</b>	
<b>E-mail:</b>			

After completing this form, please return it to ViewSonic Quality Assurance in the USA at facsimile 1-909-839-7943. You may also e-mail any suggestions to the Director, Quality Systems & Processes (marc.maupin@viewsonic.com)